

# **ML-Web discussion June 2008**

## **‘Technology in medical education’**

### **(PSG-FAIMER ML-Web intersession assignment)**

#### *Summary and discussion transcript*

**Moderated by:**

**Nalin Mehta (2007)**

**Malligai S (2007)**

**Sundarkumar S (2008)**

**Feroze Kaliyadan (2008)**

*The June 2008 discussion on technology in medical education was quite pleasantly overwhelming for most of us .It was the first exposure to this kind of learning for a majority of us in the 2008 batch and it helped a lot that the 2007 fellows were always there to guide us through the discussion. Special thanks to the faculty for the valuable and timely nuggets of advice imparted by them. As would be expected some of the fellows participated more actively through the discussion while some were comparatively more passive, understandable considering the work load that most us are burdened with. We really thank all the fellows for their participation and would specifically mention some of the 2008 batch fellows –Supten,Saira and Subodh for their extremely valuable contribution towards enriching the discussion.*

*Our aim was to sensitize each other to the practical issues related to the implementation of available technology for medical education, through personal experiences, as well as relevant resources.At the same time we hoped that everybody would be introduced to newer ,esoteric concepts in the field of medical education technology.*

*The topic was divided into four sub-topics,each being allotted a week for discussion*

**June 1st week (1-7 June): Objectives for use of technology in med educ**

**June 2nd week (8-14 June):Technologies available - pros and cons**

**June 3rd week (15-21 June: Feasibility ,innovations and improvisation**

**June 4th week (22-28 June):Application and Appropriateness**

## **Brief summary of key points:**

### **The first week : objectives of use of technology in medical education**

We – Nalin, Malligai, Sundar and I managed to start the discussion on time, along the pre-decided format. The first week dealt with the objectives of the use of technology in medical education.

Everybody agreed that educational technologies for medical teaching are advantageous

- provides safe, controlled environments that eliminate risk to patients
- enhanced, realistic visualization
- authentic contexts for learning and assessment
- documentation of learner behavior and outcomes
- instruction tailored to individual or group needs
- learner control of the educational experience
- repetition and deliberate practice
- uncoupling of instruction from place and time
- standardization of instruction and assessment
- perpetual resources and new economies of scale

## **The specific goals /objectives of using technology**

### ***From the students perspective:***

Facilitate basic knowledge acquisition

Improve retention

Increase tendency towards self learning

Improve decision making

Enhance perceptual variation

Improve skill coordination

Practice rare/critical events

Improve psychomotor skills

Improve communication skills

Make learning fun

### ***From the faculty perspective***

Reduce work-loads in the long run

Research work

CME /life-long learning

Better student feedback

Better assessment

Chart student progress – identify areas of weakness

Design learning material /curricula

More effective managers /communicators

Collaborating, Networking & resource sharing – with other institutes & universities  
Governance - Administration & communication

Other areas – smart cards /punching cards etc.

There were many interesting points raised by all the fellows

-One of the objectives which was raised was the issue of faculty resisting the use of technology. Any technology is only as effective as the faculty who use it; therefore we have no choice but to make the shift to technology as smooth and comfortable as possible

-Another interesting point that came up was regarding the use of technology in the ‘soft’ skills of medical education like communication – an interesting technique mentioned in one of the attachments is the use of videotapes – either simulated tapes made by the teacher or tapes from movies /TV shows depicting situations involving doctors – and using them to discuss issues related to communication in medicine with the students

-The need to stress more on improving e-teaching rather than e-learning

-The role of GIS/GPS in community health

## **The second week – available technologies – pros and cons**

We had another week of fruitful discussion on available technology ,pros and cons over the last week.A lot of broad topics were covered ranging from basic presentation tips and AV aids to virtual simulation and distance education.

We also had very interesting discussions on the question of whether to stress more on eLearning or eTeaching.Most of the articles that were uploaded seemed to suggest the need to focus more on the teaching side ,to empower the teachers –which in turn by itself will lead to better eLearning.

Other interesting points that came up were the significance of medical education in the context of virtual world scenarios like ‘Second life’.

Concepts like the ‘Croquet’ consortium and the ADDIE framework, (which I’m sure was new to many of us, including me) were introduced and elaborated upon by the participants.

**Potential Pros of eLearning :**

No time spent commuting to class

No travel costs

You can have a job while you take classes

You can learn when you need it (Just-In-Time)

Your learning options are not constrained by your geographic location

You can learn at your own pace

Learning can be fit into your busy schedule

Can be more effective for certain types of learners (shy, reflective, language challenged, those that need more time)

Often more student to student interaction

Can be more focused on the learner and less on the instructor

Instruction can be more customized and flexible (especially CBT)

Can lower costs for both learning providers and organizations that need training

Often less costs for students than traditional programs

Side benefits of learning new technologies and technical skills

**Potential Cons of eLearning:**

Instructors need to learn to be effective online instructors

Hard for instructors to move traditional content online

More time consuming for instructors to provide individualized feedback (because more learners are often actively involved)

Equipment needs of students and learning providers

Technical training and support of learners and instructors

Academic honesty of online students

Types and effectiveness of assessments

Lack of face to face interaction

Equity of access to learners of all backgrounds and parts of society

Requires new skills and responsibilities from learners

Does not provide many social aspects of a true campus or traditional classroom

## **The third week – innovations, improvisation and feasibility**

The third week's discussion started with something on 'adaptive eLearning' and went to other innovations, improvisations and feasibility issues with regards to assessment/evaluation of eLearning. New terms/concepts like Health Information Technology, ePortfolios and 'Blended learning' were touched. There were some interesting discussions on the ML web discussions itself (Some of which I haven't attached in the week's transcript, because I felt they weren't very relevant to the specific topic of the week). We had wonderful contributions from many of the fellows, especially Supten and Saira. Towards the end the discussion moved toward optimal use of 'google', concepts like 'intelligence amplification', and 'clinical decision support tools' and of course some wonderful time management tips by Supten. Saira also earlier had sent in a very useful and comprehensive collection of e-vocabulary

## **The fourth week –Application and appropriateness**

The fourth weeks discussion showed a much better participation level compared to the previous two discussions. Some of the practical aspects of technology enhanced medical education were discussed and new concepts were introduced – like RSS feeds ,web 3.0/internet2 and podcasts. The use of wikis in medical education was again touched upon. Simulators were discussed briefly. The usefulness of e-portfolios from both the faculty and the student viewpoint were highlighted

# TRANSCRIPT OF DISCUSSION

**First week (Objectives for use of technology in med education)**

**28-05-2008**

**Feroze:**

We're now ready to get the ML-WEB sessions on the road. Nalin, Sundar, Malligai and me had our little private discussion session during the last few days regarding the topic and I'm just posting the introductory note right now. As you would remember the topic for the month was 'Technology in medical education'

When we talk of technology in medical education I suppose we have to think of not only how we can use existing technology to improve medical education, but also how the educators themselves need to be sensitized to the available technology and its effective use

Basically technology in medical education must be practical, effective, efficient and easily accessible. We should be able to answer some of the following questions over the next one month-

- 1) what existing resources are available
- 2) How and where we can use the existing resource in the best possible way
- 3) What are the problems and road blocks
- 4) Solutions for these roadblocks
- 5) Evaluation of effectiveness of these technologies in medical education
- 6) What we can expect in the future

We will be dividing the whole topic into 4 broad groups ,one week each for one section.(Some overlap will obviously be there ,which is suppose is fine ).

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**Wrap up /summary - 29 & 30 June. (Sun & Mon)**

We request everyone to post their personal experiences, exposures etc., in addition to technology they might have heard about or read about or come by as resource material from some other source.Also please feel free to post useful resources /links whenever you feel ,even if you think that it wouldn't be really all that apt for the particular sub-topic.

I hope the discussion will start in right earnest from the 1st of June with the sub-topic 'Objectives for use of technology in med education'

29-05-2008

**Saira:**

Dear Feroze, members of the June Group and friends,

Kudos to the June group for starting well on time.The curtain raiser reflects the time, energy and coordination of the group to make this an interesting and fruitful (The fruits creep in anyway, harbingering good luck!) discussion for all of us. The responsibility is now on the rest to make the group's efforts worthwhile and at the same time gain insight on this dynamic topic.

Wishing the June group all the very best as we look forward to learn from their discussion/ moderation and mentoring.

**Supten:**

Kudos for the great prelude. "Well begun is half done"!

In 2007 Saira and Rajendran had set the ball rolling for the 7 topics of discussion with some ground rules. Unfortunately most of us didn't follow them. Nevertheless, I find it worthwhile to repeat at least two of those guidelines, viz.,

1. For any attachment, please name the file as Subject.Author.pdf or .doc; e.g., I am attaching one (Rosenblatt.Tech-Med-Edu.pdf) as an example here. It makes life much easier to retrieve them quickly at any later date. The URL of the attached file is:

[http://www.bidmc.harvard.edu/prospective/vol1/ver1/tech\\_changes.asp](http://www.bidmc.harvard.edu/prospective/vol1/ver1/tech_changes.asp)

2. Please make the "Subject" header for the emails as unambiguous as possible - e.g., for the first week of June 2008, it may be: "Objectives for use of Technology in Medical Education".

Looking forward to a great stimulating discussion

**Nalin:**

Both the tips you have posted are very well taken and I'll expect all of us to abide by these. The ground rules for the June discussion have not been posted by design. We are aware of the fact that all the fellows (2007 & 2008) are well versed in the 'use' of the listserve and are netetiquette savvy as well.

Friends, Netizens and Countrymen,

Lend me your ears.

We (Malligai, Sundar, Feroz & I) are here to moderate the coming month's discussion and not to burden you with restrictions.

Please feel free to post your views, reviews and experiences relevant to the topic of the month and sub-topic of the week as follows:

Week I (1-7 June): Objectives for use of technology in Medical Education

Week II (8-14 June): Technologies available - pros and cons

Week III (15-21 June): Feasibility, innovations and improvisation

Week IV (22-28 June): Application and Appropriateness

Feroz will do the housekeeping to weed out what might seem as trivial or unnecessary at that point in time by storing it away for future reference. I am sure all contributions will prove to be pertinent somewhere down the line.

You might want to digress from the main theme a bit in order to stress on a point or tease out a specific issue, and that is absolutely fine.

Please read Sup(er)ten's directions carefully, and abide by them so as to render the task of housekeeping and the eventual wrap up pleasurable.

Have a blast -- Do **NOT** hesitate to post whatever it is that you want to 'say'.....it is very important and we want to 'hear' it.

**Feroze:**

Nice to see the initial warm response to our inaugural post. Just a little techno-tip for those not aware of it (I'm not sure if this was discussed before ,sorry if it was )-

If you have a problem of being overloaded with the list serve mails and have trouble retrieving the same from your regular mails (I had that problem initially)

- In hotmail and yahoo you can actually create a separate folder(s) and label them as social /resources /ML-web etc. (just take manage folders-create new- and save). You can just check the incoming mails and put them ,then and there, to any folder you want.

Recovering the info becomes really easy and much less messy!

- Not very familiar with Gmail ,but as it was discussed before in our first session at PSG you can label each message with a custom label and then retrieve all similarly labelled messages.(You can create a single notepad file also from such a list )

Any other tips from the others ?

30-05-2008

**Shital:**

In Hotmail, you can even have FAIMER mails directly to your created folder by going to option and then "Customize your mail" and to "automatically sort e-mails to folder" and putting PSG-FAIMERINSTITUTE@LISTSERV.ECFMG.ORG in the to or cc list. This is helping me to get all the ML-Web mails to my FAIMER folder. Hope this helps to others too.

**Subodh:**

I congratulate the 'June Discussion Group' for starting the discussion on the 'Technology in Medical Education' before time.

Here are a few small tips on using e-mail service. These tips help me organize my work and hope, it will help you also.

1) As Shital has mentioned regarding customizing the mails. This service is available with almost all the mail services. In G-mail, you can create filters to organize your mails. You can utilize the filters to do lot more than just assigning a label to a mail. You can create filters by clicking on the link 'create a filter' on the top of G-mail page. Or, you can also create filters by going to 'settings' or topmost right hand corner on your G-mail page.

2) If you are using Internet Explorer 7 or Mozilla Firefox, you can get your labels of G-mail colored. For example, I have made a label 'To Do' and customized it so that it appears red. Now, whenever I open my G-mail inbox, these red labels will draw my attention. You can use different color pellets for different labels.

3) One feature which may be extremely useful to you if you are using an e-mail client like Outlook Express or Microsoft Outlook or Thunderbird is IMAP feature. It does not only download the mail, but syncs your folders and labels also. Whatever changes you make in the e-mail client will also be uploaded on the e-mail server. Thus, it avoids you the problem of organizing your mails in the e-mail server (e.g. G-mail) as well as in the e-mail client (e.g. Outlook Express). If you access your mails from two places (for example, home and office) using some e-mail client, you must go for this feature. Earlier, we had only option of using a POP feature if we used an e-mail client. G-mail provider you the IMAP feature free of cost. I think, other servers will provide this service, only if you are paying for the e-mail service. IMAP feature will be more handy and user-friendly to use. You may give it a try. If you want to learn more, please visit G-mail help page at <http://mail.google.com/support/bin/topic.py?topic=12806> .

**Sundar:**

tehnology in medical education

the objectives are

- 1) how technology can improve the teaching, learning and evaluation process of medical education
- 2) what are the various technologies available?
- 3) feasibilities of these technologies at the institutional level, national level

my focus on technology pertaining to emergency medicine are

- 1) medical simulation as a teaching tool ?
- 2) e-simulation and virtual teaching methodology pertaining to emergency medicine

to start with I have attached an article how technologies have influenced medical education

**Jyoti:**

I would also like to say 'Well begun is 1/2 done' Infact you have given a very good plan to start the discussion

Best of luck

31-05-2008

**Feroze:**

Thanks Subodh and Shital !Those tips are really valuable ,especially regarding the filters in gmail.I know that this isn't directly related to technology in medical education ,but I'm sure it'll help getting the list serve data organized much better .As for me myself , I've created separate folders in hotmail under - list serve general ,list serve social ,list serve resources and ML web june.I suppose each months' MLweb can be put in a separate folder/filter/label so that recovering the necessary data and putting it in order will be easy for whoever is doing the 'house-keeping' (as Nalin succinctly puts it!,although the term does sound a bit ominous considering what I see my wife go through with 'house keeping'!!)

As for Sundar's comments ,I think it was quite relevant ,though it might fit better towards the end as Nalin suggested.But it's be nice if everybody started off with the way Sundar did i.e what would be THEIR personal objectives with regards to technology in Medical education.I'm sure some of us like Supten can really contribute with their rich personal experiences in the same context.

**Subodh:**

My personal objectives for the e-learning session for May would be:

1) To identify technology which can be used now for improvement of medical education with existing resources or minimal additional resources

at national level

at institute level

2) To get practical tips so that these identified technologies can be put into place at my level ('What to do' and 'what not to do' type of stuff)

3) To gather evidence for usefulness of these identified technologies and to know about institutes where these are already in place to start advocacy for accepting these technologies in medical education at different levels.

I understand that I am only rewording what Sundar has already said, but by doing it myself, I am more clear what I want from the June session.

**1-6-2008**

**Animesh:**

Its really good to see that you have begun with a bang. You deserve compliments for being before time and that too when you are the first of the block.

Coming to the topic, I'm sure it would give us lot of inputs and also a lot of food for thought.

I feel that we need to use technology in medical education to make learning simpler, easier and interactive. It could help in making it student friendly.

As of now there are various resources available: be it in the form of PPT presentations, videos, mannequins and models in Clinical skills lab, tele and video-conferencing, or e-learning and self assessment lessons. There is a bank of resources available on the internet these days. The lectures are available on some University sites as well as sites like pitts.edu which has a series of Supercourse lectures. The very advent of computers and its ubiquitous presence has added a new dimension. The simple LCD projector which was a scarce commodity earlier is freely and readily available and is even portable enough to be used at various locations.

There are some hurdles or obstacles though. Many a times some of the faculty (mostly seniors and especially those from earlier days) [No offence meant to anyone in particular] are not very keen to use the new technology as they find it a little difficult to use the new tech. Besides, the availability of the technology itself is one of the limitations when we consider the diverse educational institutions in govt, pvt or semi-pvt sector in a developing country like India. Here the mindset and the openness of the administration besides the availability of the funds are also a factor governing the transition to the modernness.

These are some of the thoughts that come to my mind at this moment. I look forward to fruitful discussion and also learning about various resources and new information as the discussion progresses.

**Feroze:**

Animesh and Subodh have really given some wonderful inputs. Waiting to see the others' comments.

I suppose the objectives of Technology in medical education will be basically the same as the use of any aid in education

A few things I can think of (including inputs from Subodh and Animesh)

- Making the teaching learning process more effective
- Improving retention in students
- Making teaching /learning more fun
- Self learning – self learning modules /web sites
- Assesment – self or otherwise – online evaluation /computer generated question sheets
- Improving communication – teacher to student or vice versa or student-student
- Overcoming man-power shortages – virtual class rooms /teacher less classes etc
- Overcoming distance factors – distance education /tele-education etc
- Overcoming shortage of clinical cases / clinical posting time – virtual patients /skills labs etc
- Improving practical medical skills – skills labs /virtual patients

I suppose knowingly or unknowingly we have all been exposed to or have used technology in the teaching or learning of medicine. The level of exposure will only increase and we simply have to keep pace with the changes.

I remember a rather illustrious medicine professor of mine who recorded the different types of speeches in patients with neurological problems (eg: the staccato speech in cerebellar disorders). What better way could be there to demonstrate this? (other than of course hearing a patient live, which may not be possible in all cases). We were obviously quite impressed and 'staccato speech is one of the few things I managed to retain successfully from the otherwise cloudy muddle of internal medicine clinical postings!! The same professor used to make small Chinese figure cut outs which he used to place on the OHP top to demonstrate limb positions in different types of pareses /paralysis. It was such a simple idea and yet had a great positive impact on us students..

Cut to the present, when I have my students and interns giving me the inside info on the best sites for medical book downloads (if you haven't tried it try sites like – [http://ebooksbay.org/Medical\\_Heaven](http://ebooksbay.org/Medical_Heaven) -it's very simple to download whole books – you require only a broadband connection and winrar software, which can be easily downloaded) or presentation templates /animations

In fact only yesterday a student of mine enlightened me about an online evaluation resource – available at <http://zohochallenge.com> (www.zoho.com also has other very useful resources including project management software). If your students have access to the internet, you can actually create and post tests on the net, with attachments (Jpg /ppt etc)

So technology keeps changing and we simply have to keep pace with it and it is also for us to adapt the available technology in the best possible way for our objectives.

**2-6-2008**

**Amol:**

Thanks for sharing information/sources on 'Technology in medical education'. To my understanding, the objectives of using technology in medical education is to accelerate

students' learning. Technology should be seen as complementary to simple and organized lectures, and not as replacement to it. Hence, i would like to know how technology can be placed in modern medical education? All students may not be friendly with new technology used. How to address that? Sometimes use of OHP/LCD improves the lectures but in case of power failure/failure in machine makes it worse. These are the practical problems in rural settings of developing countries. Discussion/information on all this will help to understand this subject. Hope someone will respond to these queries.

**Ashwini:**

Thank you for opening the session of ML Web-learning. hope to learn through the whole experience.

Technology in medical education , according to me is a boon. because,

1)in medicine the more illustrious the concept is better is the comprehension. by using audio-visual aids, power points, the point to be communicated is better done and at faster rate.

2)it makes the students understand better. Especially in anatomy, a 3D visual would be self explanatory when the students sees it after going through the theory part. this has a great impact on the memory. It helps you remember a lot of concepts, like relations, applied aspect, clinical symptoms as now seeing a typical case with typical symptoms is quite rare.

3)Videographic surgeries with the aid of facilitators also explains the whole surgery in a better manner than a detailed lecture on the procedure or standing in the OT, trying to squeeze in just to catch a glimpse of fresh blood or tissue.

4)it also addresses the shortage of resource persons, with the aid of technology, a singlr person can address a gahtering.

5)technology can also be utilised in assessments of knowledge of the student.

6)but it can never replace a living teacher.because a student always needs a person to whom he can communicate for queries and understanding. So technology is good aid or an adjunct to enhance learnig by the student, improve communication skills.

7)As Amol has rightly put, what if the power goes out. it really tests the knowledge and capacity of the teacher. So we should not be totally dependent on these aids.

**Vimal:**

It is only the second of the month and I am already lagging behind in the discussion. The group seems to have got this going full throttle.

During this first week, when we are discussing "objectives", are we are looking at the scope of technology in medical education (as an aid in teaching, as an aid in assessment, as a resource pool, etc) or its advantages? Perhaps both. With regard to the scope, it might be a good idea to invite discussion on each of the areas and maintain the thread in the next three weeks as well. Speaking of advantages, I would like to add that any technology is only as good (or as bad) as its user.

Animesh made a reference to technophobia among the faculty (particularly among the seniors). May be this month's discussion will help convert a few. Easier said than done.....Try straightening a dog's tail.

### **Supten:**

Certainly it looks promising that the discussion is gathering steam!

I am attaching an article by Paay and O'Brien (2000) that states: "students achieved improved results when using an on-line interactive tutorial in comparison to an electronic book."

The obvious advantages of an Online Interactive Tutorial include:

1. The student can log on any time from any where and go through the study materials as many times as s/he would wish.
2. Assignments may be submitted repeatedly (within a stipulated time limit) and the Instructor(s) may go on helping to improve those, especially for the early birds.
3. There is ample scope for asynchronous exchanges of ideas / tips (discussions going on at the time and pace of the respondents).

Looking forward to specific responses from the enthusiastic Co-Fellows (of both 2007 and 2008 batches).

**3-6-08**

## **Shital :**

The ml-web June session is going extremely well with excellent inputs, comments and responses from 2008 and 2007 faculty. I think that the objectives of the use of technology in medical education should not be confined only to teaching-learning methods.

I propose the following objectives with our context:

1. It should aim to facilitate those who wants to become life-long learners.

Context: I believe that teaching-learning activity plays vital role to become the life-long learners. Thus, we can decided to use PBL in the pre-clinical (basic sciences) where PBL cases might cover as much as 50% of basic science courses at PAHS. I have found out that students trained in the self-directed learning environment are far more willing to become life-long (self) learners than other system.

2. It should facilitate and encourage faculty to optimally use the technology.

Context: At PAHS, we encourage the clinicians to use technology to acquire information about the patient, make clinical decisions based on available information, and relay findings whereas the basic scientists using it to share and receive comments from our international panel of experts regarding curriculum development and teaching-learning methods.

3. It should aid the basic and clinical faculty to become an effective educator as well as communicator.

Context: We are currently fine-tuning the basic and clinical science curriculum for PAHS MBBS program and we have thoroughly discussed the possible use of technology (existence and retrieval of resources) to achieve the general as well as specific objectives of each organ-system blocks. Clinicians associated with various post-graduate programs are slowly becoming technology dependent to become a role model of a good educator/communicators. Telemedicine has helped us all a lot to achieve these goals.

4. It should support the individual and institutional research mechanisms.

Context: At individual level, we are using various technical tools to help them to understand the sources of data and employ the methods of decision theory to help formulate the hypotheses. They are also being supported to collect, organize and interpret their data.

At institutional level, we plan to leave the patient and institutional boundaries and go to the community. We have pre-tested the use of GPS in the community based research and the results are encouraging.

5. It should aid the faculty to become effective managers.

Context: The formal course of medical informatics trains students to manage their data, time and resources whereas faculty must understand the effective management of costs, manage and work effectively in groups, and manage themselves by appreciating the role of information technology in relation to managing the cost of medical care and its impact on individuals and society. At PAHS, founding faculty have multiple responsibilities and they should know the impact of these factors on health care of an individual and society as a whole.

We are following many published works on the use of technology in medical education but the attached Report of Association of American Medical Colleges' Medical School Object Project No. 2 (msop2.pdf) is our base document which was localized with series of consultations with the PAHS faculty and it is still evolving.

**Supten:** Dear Shital,

Thanks for uploading the wonderful resource.

In p. 12, Table 1 of the document, the Strategic Advice to "Develop "open computer" (analogous to "open book") examinations" is something which I personally like very much.

However, in the Indian medical student assessment scenario there is no question of "official" "open-book" exams so far. Therefore, "open computer" (meaning answering the questions online from a computer that is connected to the Internet live) exams are something which may cause a "shock" among our medical education policymakers! I have been giving (open computer) assignment(s) to MBBS students on a medical problem and the student feedback has been very good.

We still have a very long way to go.

**Marina :** I too agree that the objectives should not be confined to teaching learning methods. As mentioned in the attached reference, page 1, ' the medical school must ensure that before graduation a student will have demonstrated to the satisfaction of the faculty, the ability to retrieve, ( from electronic database and other sources) manage and utilise biomedical information for solving problems.....'. Therefore during his training period a student must get adequate opportunities to exercise this objective. In our department all students are given an opportunity to prepare and present a short topic (10 min duration) for their seminar. They are marked on their presentation skills and subject matter. Probably we should also mark them for their ability to retrieve relevant subject matter from the electronic media. Making small adjustments like this would inculcate good learning habits among students. I have yet to read the full reference. Thanks Shital

**Feroze :**Shital ,that was a wonderful article.I think the article cover most of the broad aspects of medical informatics .The delineation of how informatics should be directed towards the five major roles of a physician (*Life-long Learner, Clinician, Educator/Communicator, Researcher, and Manager* ) was especially nice.I think one other role which is not addressed is probably in the area of all-round development of the physician in terms of 'medical humanities' and related 'bio-ethics'.Does technology in anyway help in these areas?I wonder if Ravi ,Nalin and Unni might have some valuable inputs?

**4-6-2008**

**Saira :**Dr. Vimal and Dr. Marina have brought in pertinent issues to our discussion thread. As each of us share our list of "Objectives for use of technology in med education", the stage is set to learn about the scope for technology in medical education.

Excellent viewpoints there, Shital, Ashwini, Feroze, Subodh and Supten!

Technology [in medical education] has to pave the way for a 'systematic, iterative process for designing, instruction or training to improve [student] performance'

I would look up to technology in medical education to help us to

Design a range of learning materials

Demonstrate an understanding of the function and utility of a range of teaching methods and media

Initiate/ implement new curricula

Plan and carry out effective student assessments and curriculum evaluation techniques

Facilitate faculty development and

Improve student learning

If it helps to encourage wise use of systems, environments, tools, products, and strategies that can enhance human learning and competence, then the purpose is well served.

I am sure there are at the least twenty other perspectives or perhaps concurring viewpoints from the others which the group is waiting to benefit from.

### **Supten:**

The question: "What is Technology?" leads us to numerous definitions. I'd personally vote for:

<http://science.education.nih.gov/supplements/nih4/technology/other/glossary.htm> that states Technology to be: "A body of knowledge used to create tools, develop skills, and extract or collect materials; the application of science (the combination of the scientific method and material) to meet an objective or solve a problem."

In our "Topic of the Month", the "Objective" is "Medical Education" that can be defined as: "education related to the practice of being a medical practitioner, either the initial training to become a doctor (i.e., medical school and internship) or additional training thereafter (e.g., residency and fellowship). [Wikipedia]" or "Specialist training in one or more branches of medicine, including instruction in biology, physics and chemistry. [<http://www.bioscience-bioethics.org/m.htm> ]"

Therefore, we would prefer to choose the "appropriate" technology, suiting our "needs" (essential) and "wants" (desirable) for "gaining" or "imparting" medical education. Each of us may require a different use of technology for our designated jobs and ambitions.

For the sake of clarity and brevity, it may be prudent to focus on less topics and go deeper (depth). However, we may also try to cover as many topics as possible (breadth). The specific responses will perhaps guide the discussion.

Another salient feature of the ML-Web activity is that every member can not only read but also post his/her views and gain through mutually beneficial interactions.

However, "silent readers" may gain themselves but the other members will be deprived of their views and opinions.

Looking forward to fruitful interactions.

Ethical and Humanitarian issues have been an integral part of medical informatics since computers are lacking the "human" touch and sensitivity!

There are innumerable articles on their relation, I am listing a few URLs for those who may feel interested to go deeper:

<http://mh.bmj.com/cgi/content/extract/30/2/57>

<http://www.bmj.com/cgi/content/full/333/7557/2>

<http://www.bmj.com/cgi/content/extract/336/7653/1090-b>

<http://www.bmj.com/cgi/content/full/333/7560/196>

<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=1613457>

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<http://annonc.oxfordjournals.org/cgi/content/full/16/10/1567>  
<http://www.jmir.org/2005/2/e21/>  
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=1599240>  
1  
<http://medicine.plosjournals.org/perlserv/?request=get-document&doi=10.1371/journal.pmed.0020102&ct=1>  
[http://intqhc.oxfordjournals.org/cgi/content/full/15/suppl\\_1/i41](http://intqhc.oxfordjournals.org/cgi/content/full/15/suppl_1/i41)  
<http://www.jmir.org/2000/1/e8/>  
<http://www.jmir.org/2000/1/e7/>  
<http://www.jmir.org/2000/1/e1/>  
<http://jme.bmj.com/cgi/content/extract/29/2/117>  
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=1141597>  
4  
<http://www.genome.org/cgi/content/full/11/5/637>  
[http://www.mja.com.au/public/issues/172\\_01\\_030100/carter/carter.html](http://www.mja.com.au/public/issues/172_01_030100/carter/carter.html)  
<http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=1058775>  
5  
<http://www.bmj.com/cgi/content/full/320/7251/1713>

Unfortunately, it will not be possible to discuss all these issues, in any detail, within the stipulated time frame allotted for the discussion.

I am attaching an article by Lo B on the ethical issues related to the use of Electronic Medical Records.

**Nalin:** Addressing a very important point that Animesh had raised: On 6/1/08, Dr Animesh Jain wrote:

"..... There are some hurdles or obstacles though. Many a times some of the faculty (mostly seniors and especially those from earlier days) [No offence meant to anyone in particular] are not very keen to use the new technology as they find it a little difficult to use the new tech. Besides, the availability of the technology itself is one of the limitations when we consider the diverse educational institutions in govt, pvt or semi-pvt sector in a developing country like India. Here the mindset and the openness of the administration besides the availability of the funds are also a factor governing the transition to the modern ness...."

People, not necessarily the ones who are more experienced (read 'seniors & those from the earlier days), are a little reluctant to use technology....just as we were with our first few stints when it comes to using an ATM card for cash transactions without a 'human'

contact, e bookings etc. Will it work? Will I get the money? Will someone clean up my account and leave me high & dry? Is there a witness to this transaction? Do I have anywhere to go to and complain if required? These common doubts went through our minds since we were not well versed with the newer technology and so did not have Faith in them. The senior faculty members did not trust computers and internet based teaching aids too much for the same reason. There are a host of other reasons as well, but I'm aiming to keep this simple.

So, now it is your job to introduce the change and get those who are not very sure about technology to start seeing it work. Also, since all the institutes are putting in a lot of effort to improve their teaching and keeping up to date with the latest (although in doing so, some are caught in a decision-making and funding quagmire), we (the entire faculty -- seniors, old timers, the young and restless et al) SHOULD ask a whole bunch of critical questions like:

"Where best should we focus our funds?"

"What are core components of effective systemic change?"

"How can we best support teachers so that all students can succeed?"

Technology springs up as a plausible answer here. Using technology as a means of closing achievement gaps is one option most of the institutions are considering more purposefully and effectively. This includes using technologies for students with special needs and creating a systemic approach to change that benefits all students.

Teaching is changing and, in many ways, becoming a more difficult job because of increasingly numerous contradictory expectations, including:

1. We are living in an age of information overload with the expectation that students will learn high-level skills such as how to access, evaluate, analyze, and synthesize vast quantities of information. At the same time, teachers are evaluated by their ability to have students pass tests that often give no value to these abilities.
2. Teachers are expected to teach students to solve complex problems that require knowledge necessary across many subject areas even as they are held accountable for the teaching and learning of isolated skills and information.
3. Teachers are expected to meet the needs of all students and move them toward fulfillment of their individual potential even as they are pressured to prepare students for

maximum performance on high-stakes assessment tests that are the primary measure of student and school success.

Technology can actually assist with some of these expectations and make teachers—and their students—more successful. However, as the world becomes more complex -- virtually year-to-year instead of the generation-to-generation pace of most of the last century -- educational needs continue to shift from teaching and learning isolated skills and information within each content area, to teaching skills that enable students to solve complex problems across many areas. Educators must prepare for a technology-rich future and keep up with change by adopting effective strategies that infuse lessons with appropriate technologies. This makes an authentic assessment needs even more important: Assessments must keep pace with effective instructional technology use. All this while educators at every level, but teachers especially, actively pursue professional development that enables a lifelong exploration of ways to enhance the teaching and learning of science and support science education reform.

Focus should be on various aspects of:

1. Student performance - Student learning & Assessment
2. Faculty training for use of technology - Teacher preparation
3. Facilities, Support and Instructional resources - Resource allocation and technical support
4. Parent & Community participation - always helps in education (is usually ignored)
5. Research - ideally goes hand in hand with education
6. Collaborating, Networking & resource sharing – with other institutes & universities
7. Governance - Administration & communication

**Animesh:**The discussion seems to be going in a good direction. Its interesting to get so much inputs and that too from varied perspectives.

Shital has just sent a wonderful resource. Keep up the good work Shital.

I just came across an article. I am attaching the URL here. It talks of some pertinent issues too. Hope some of you would appreciate and will have some more to share.

[http://www.bidmc.harvard.edu/prospective/vol1/ver1/tech\\_changes.asp](http://www.bidmc.harvard.edu/prospective/vol1/ver1/tech_changes.asp)

Also, there is an article attached with this mail (pdf file) by Sargeant in J Postgrad Med.

**Ashwini:**In continuation to what Nalin has rightly put up, technology in medical education is not only related to teaching -learning method but also, it is being used as biometric system for faculty to check in and check out of the hospital/college. now there is a rumour that it is going to be used even for student assessment. this way it becomes easier for the maintenance of attendance.

the smart ID card being used for faculty by MCI is also a part of technology in medical education to check on the aculty involving in more than one college

**Feroze:**

I think if we use 'technology' by any of the definitions given ,it could range from using a laser pointer in a classroom to searching for literature on the net to setting up a virtual online classroom and a whole range of things beyond and between.

In effect I suppose we will invariably tend to veer towards what would better be termed as 'information technology' rather than 'technology' as such.

Information Technology (IT), as defined by the Information Technology Association of America (ITAA), is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." IT deals with the use of electronic computers and computer software to convert, store, protect, process, transmit, and securely retrieve information. (I didn't understand much of that definition myself..but to summarize..it's all and anything about computers!!)

Interestingly one of the first most comprehensive treatise on computer technology in medical education was a report by something called the OTA health group , with help from many organizations ,including the Association of American medical colleges.This

was published under the title of 'Computer technology in medical education and assessment' in Sept 1979 (!)

[govinfo.library.unt.edu/ota/Ota\\_5/DATA/1979/7903.PDF](http://govinfo.library.unt.edu/ota/Ota_5/DATA/1979/7903.PDF)

Though computer technology itself has changed beyond recognition since then, the basic presumptions that the study raises are very valid. In fact the document virtually covers the entire basics of computer assisted medical education and assessment

The basic issues is what are objectives in using technology?

“Specifying the knowledge to be obtained, the skills to be learned, and the standards of acceptable performance is a prerequisite of any education and assessment system. Educators refer to the specification of measurable knowledge and skills as behavioral objectives.

Ideally, then, instruction should be designed to teach objectives; tests should be developed to measure attainment of objectives; and administrative mechanisms should be developed to monitor, record, and manage activities in the educational process.”

As you can see the document mentions three broad components

1. Computer-assisted instruction, involves the computer in the presentation of instructional material. The computer is combined with other media, such as lectures, films, and labs, in the instructional process and is used ideally for those aspects of the teaching/learning process that can benefit most from CAI capabilities.
2. Computer-assisted testing, can be on-line, when the test is generated by the computer and administered at a terminal connected to a computer, or off-line, when the test is administered manually by paper and pencil. The computer can support testing in any of the following ways: (a) store and retrieve banks of test items, b) administer tests; (c) score and print results of tests; (d) maintain testing records for purposes of test validation and/or student diagnosis and prescription; and (e) catalog and reference instructional materials relating to specified knowledge and skills.
3. Computer-managed instruction. manages the learning process by assessing the student's level of skill and knowledge through testing, by maintaining records of student progress through a course or within individual sections of a course, and by prescribing the next step a student should take in his/her studies

I think a lot of what we are going to discuss in terms of 'technology in medical education' will tend to directly or indirectly fall under one of the above three groups.

Ashwini , Like you rightly mentioned Electronic punch cards / smart cards and other biometric systems are likely to enter the medical colleges in a big way (I suppose it may also educate us educators not to bunk classes too often in future!!!)

some interesting links on biometrics

1.[http://www.bsu.edu/web/awenglish/SCHOOL/ITEDU\\_510/ta.html](http://www.bsu.edu/web/awenglish/SCHOOL/ITEDU_510/ta.html) (this article suggests that biometrics can be used to ascertain that a student did really attend a class...bye bye to the good ol' days of proxy 'present sir/madam' calls from the back benches!)

2.<http://csdl2.computer.org/persagen/DLAbsToc.jsp?resourcePath=/dl/proceedings/&toc=comp/proceedings/conielecomp/2008/3120/00/3120toc.xml&DOI=10.1109/CONIELECOMP.2008.36>

**Komala:**

I have been one of "silent readers" so far, however I have learnt a lot from the discussions. Based on all your postings my personal view of -"Objectives for use of technology in med educ" is that it can be based on different levels, (as subodh and Sunder had mentioned earlier) although there can be overlap as

Students:

To have the ability to use computers and its software- to store, process, transmit and retrieve biomedical information for solving problems and they must be given time and opportunity for the same.

Faculty:

To design e- learning materials like interactive tutorials

Learn the utility of a range of teaching methods using technology for effective teaching

To manage their data and resources effectively

Plan and carry out effective student assessments and curriculum evaluation

To acquire, store, process, transmit and retrieve information for Curriculum development and Research Activities.

## Institution Level

It should support the individual and institutional education and research activities  
Initiate/ implement new curricula, design educational objectives  
Facilitate faculty development and  
Provide facilities, technical support and Instructional resources  
Create better communication between educators, Clinicians, Parents & Community.  
Other Administrative purposes like in biometric system (which we already have in our institution)

## University and Higher

Collaborating, Networking & resource sharing - with other institutes & universities  
Administration to monitor, record, and manage activities in the educational process.  
Effective communication.

**5-6-2008**

### **Supten:**

Dear Feroze and others,

Thanks for the excellent precis.

I am forwarding a mail I had sent yesterday (in response to Ashwini's mail) and you have rightly pointed out that the "reply to" is not set to the listserv.

Last year in July we had a discussion on "IT in (medical) education" and the transcript of the discussions is available at:

[http://psg.faimer.googlepages.com/IT-Mededu-DiscussionPSG\\_FRI\\_july.pdf](http://psg.faimer.googlepages.com/IT-Mededu-DiscussionPSG_FRI_july.pdf)

AND

[http://psg-faimer-2007.wikispaces.com/space/showimage/IT-Mededu-DiscussionPSG\\_FRI\\_july.pdf](http://psg-faimer-2007.wikispaces.com/space/showimage/IT-Mededu-DiscussionPSG_FRI_july.pdf)

Interested readers may glance through it.

### **Amol:**

Dear FAIMER family,

The different viewpoints on 'Technology in Medical Education' were enlightening for me. The group discussed about the use of technology to improve conventional clinical teaching by using technology (simulation models). Technology is also being used in administration of medical systems (smart card, computerized HMIS in hospitals). For the subject like Community Medicine, which receives little respect in medical discipline, due to its non-tangible nature, technology may be useful. How this can be done? eg

1) Well planned biostatistic lesson plans in computer lab having data sets for exercises and trained teachers

In exam oriented settings, more students would pay attention to technology based learning, only when it is part of examination system. eg

1) Medical undergraduates get simple data set to analyze and interpret using commonly used softwares as a part of their practical examination

**Muhammed:**

Dear ML - WEB June fellows,

you have started your show... it is good,

let us learn to teach...

All the best..

**Supten:**

Dear Thomas, Amol and Others,

The application of Informatics to Community Medicine is broadly under 2 heads: Public Health Informatics and Epidemiology Informatics.

One of the most comprehensive relevant portals is: <http://www.nbirn.net/>

Another useful one is:

<http://www.netdoc.com/Dictionary/Medical-Dictionary/Public-Health-and-Epidemiology-Informatics-Shared-Resource/>

Moreover, there are departments dedicated to such activities:

<http://www.cphi.washington.edu/>

<http://www.ohsu.edu/dmice/>

<http://www.nwcp.org/resources/phicomps>

One of the advantages that a populous country like India has is that the total cost for infrastructure for GIS (incidentally the telecommunication infrastructure in India is rather strong) can be divided among the population served, so, per capita cost can come down very much.

### **Ashwini:**

THIS ML WEB LEARNING itself is a good way of utilisation of the technology for medical education.

Using internet is a boon to the medical education be it thesis writing, seminar presentation or for research. it give a quick access to immense data from all over the world sitting at one place.

discussing about "computer assisted learning" it has an important role . a lot of information will be given, the student can learn at his own pace once the input is given through computers.

the drawbacks are-it needs commitment from the faculty to be involved continuously for updating the data, or for online tutorials. it is tedious process and time consuming.

all these CAL programmes need to be standardised which is very important.

looking from the scenario of the existent condition in India, cost effectiveness is a problem, orientation regarding the updated knowledge and usage of appropriate media for the students and the faculty is the most essential criteria for effective and world wide usage of technology in medical education.

**Supten:**

Dear Muhammad and Others,

This is NOT a show of the moderators for June 2008 only!

All of us (please excuse my monopoly) are supposed to participate actively in the discussion and the moderators are supposed to keep us sane by threading the pearls (of wisdom, if any) and encouraging everyone to participate.

As Ashwini has rightly pointed out, "This ML-Web Learning itself is a good way of utilization of the technology for medical education".

By actively engaging in the discussions, we also learn:

(i) How to gain from "group" discussions

(ii) How to communicate across time and space barriers (Fellows at different geographical locations may log onto the Internet at different times yet be talking about the same ideas)

(iii) How to appreciate the posts sent by others and letting them know that it is being read

(iv) How to acknowledge if any help is obtained

(v) How to disagree politely if the points raised by anyone has some demerits or there are other valid viewpoints possible.

We are supposed to be 32 Fellows (16 each from 2007 and 2008) and even if each of us posts one mail daily there would be more than 30 days needed!

**Shital:**

Dear Amol and Friends:

Just want to add some points to Dr. Chacko's comment: I think use of Technology in Community Medicine is enormous:

Setting 1: Kathmandu University Medical School (KUMS) - I tried doing what you have suggested i.e. putting well planned biostatistics, epidemiology and demography lectures at Kathmandu University Medical School's (KUMS) media-tech lab with field and other data sources in popular MS Excel and SPSS formats. Initially, I gave some demonstrative lectures to the students as well as to the interested faculty. Due to its enormous success, I was able to get 5% of total marks to assess the use of medical informatics in the final community medicine exams which was not planned before.

We were also able to develop a computer program to capture and analyze the field based database which consequently saved a lot of student's time. Later, we only asked them to interpret the results and we used it to evaluate the application of what they have learnt in the Evidence Based Medicine (EBM) courses via use of technology in community medicine.

So, my experience at KUMS is very encouraging and I am using that experience now to develop and promote the use of medical informatics in PAHS curriculum.

Setting 2: Patan Academy of Health Sciences (PAHS) - Apart from the KUMS experience, we are planning to pre-test the use of GIS in our prospective residential field visit sites to do community based teachings, learnings and researches. We found that it is very good instrument, though costly, to do even the Randomized Community Control Trails. Pre-test of this technique in a small community near Patan Hospital for a Typhoid Study has shown remarkable results (tracing the sources of Salmonella T and Para-T). Thus, we are very optimistic of using GIS in our future teaching-learning and research collaborations. We are planning to use the GIS to ensure the quality of our field visits i.e. tracing of quality of visits to the pre-allocated houses and we want to link up this spatial database with our field data (which will be quite recent) with other local, regional and national data/indicators to conduct various population based teachings, learnings and researches that might add and/or modify the health programs and policies in our country.

In order to achieve this at your institution you might want to train yourself or any faculty in Geographical Information System (GIS) tools and Global Positioning System (GPS) instruments. I suggest to expose our undergraduate students with free GIS software like Epi-Map (comes with Epi-Info: [www.cdc.gov/epiinfo/](http://www.cdc.gov/epiinfo/)) or commercial software like ArcView (ESRI company: [www.esri.com/software/arcview/](http://www.esri.com/software/arcview/)) to make simple maps and link them with relevant database. I think, we can do this in our basic science biostatistics curriculum where we teach about graphs. And, we have found that GARMIN GPS devices are very easy, simple and effective ones ([www.garmin.com](http://www.garmin.com)) to use in the field and later retrieve its database in the GIS software.

These are just few examples and I think "The Sky is the Limit". Thus, my suggestions to you is to work closely with medical informatics department (or biostatistician, epidemiologist or anyone who have sound knowledge of applied technology) and explore the possibilities to use and integrate technology in community medicine teaching-learning practices and researches.

Therefore, I fully agree with Thomas sir that its upto us now to promote and integrate the use of technology in community medicine (health???) and I am sure that you can take a lead to change it at your institution.

**Supten:**

Dear Shital,  
Congrats for the great work that you have been doing.  
It is indeed an eye-opener for all of us.  
We'd love to know more about your success story.

**Shital:**

Dear Supten,

Thanks a lot. I think we should share our experiences so that we can learn from each other. Very much want to appreciate you, Marina, Feroz, Animesh and others regarding comments on Medical Informatics' Objectives. I will soon write you about the "open assessments" because we really need inputs from you and the group as a whole.

**6-6-2008**

**Ravi:**

A few observations from my side regarding 'Technology in medical education'. Certain of these aspects have already been covered in the 2007 discussions on 'IT in Medical Education' and 'Distance Learning'.

My personal experience with technology has been limited. For classroom teaching the three main modalities available are the blackboard/white board, the overhead projector (OHP) and the LCD projector.

Blackboard is a simple technology available in nearly all schools (not just medical ones) the world over. The main advantage is it is easy to use and always present. You just take a piece of chalk and start using the board. 'Blackboard' is a modification of this technology where you write normally and what you write is saved as a Power Point slide. The main advantage is that you can create diagrams in front of the learners and you can easily erase what is not needed. The dust raised while erasing is a major problem.

The whiteboard is a modification where you write using colored marker pens. The major advantage is that dust is not raised while erasing putting less strain on the respiratory system. In my institution KIST Medical College we are only having white boards and have entirely done away with white boards. The older generations of teachers have a

special place in their hearts towards white boards and a common saying among them is 'A good teacher is one who can teach using only a chalk and blackboard'.

My personal favorite among AV aids for student teaching is the OHP. More technologically advanced than the blackboard but still simple enough to be used in the developing world. Creative use of the OHP with overlay technics can make it a very effective medium. The main advantage is that the lights can remain on in the class room and you find it easier to maintain eye to eye contact with the students. The only problem is the bulb fusing but this can be taken care of by an electrician. In my lectures I make use of both the OHP and the blackboard.

The most advanced in our part is the LCD projector. This is very effective if used properly. In anatomy and embryology the process of development and the relation of various organs can be shown in a vivid and effective manner. The same holds true for physiology with the ADAMS CDs. Pathology also has some effective material. Pharmacology is basically more abstract and dynamic CDs are available in some areas but not in others. LCD projector requires good IT support. Problems of conflict of various versions of software and of the projector not picking up signals from the computer are common. Sometimes your CD or pen drive or even floppy may not open leading to problems. Computer viruses are a major hazard.

A very effective AV aid widely used during the FAIMER session was the flip board and the flip chart. We came to realize how effective it is especially during activity-based small group sessions. The main advantage is the simplicity and flexibility. We plan to use flip charts extensively during the practical and PBL sessions.

Computer software enables a student to carry out various experiments and do processes in a virtual set up without causing harm to himself/herself or to patients. We have various experimental software in pharmacology and the Expharm developed by JIPMER, Pondicherry, India is especially useful. Software are available for various subjects.

The net also provides a collection of freely downloadable software. Many textbooks these days come with companion CD-ROMs which are useful to emphasize various points in the text and can provide online tutorials.

That is all for the present from my side. But I will revisit this topic a few days later

### **Barani:**

From my perspective, I would like to share my views regarding E-teaching and E-learning. I got few information from this web site:

[http://meld.medbiq.org/divergent\\_views/better\\_eteaching\\_harris.htm](http://meld.medbiq.org/divergent_views/better_eteaching_harris.htm)

## Why We Need Better E-Teaching, Not More E-Learning

The technology and concepts to deliver effective medical e-teaching now exist.. It is possible to create realistic e-teaching programs that actually improve medical decision-making skills across international boundaries.

We need to raise the bar for e-education so that e-teaching is the standard, not e-learning.

The fundamental premise on which e-teaching programs must be built is that education is about *improving performance and changing behavior*. E-teaching should be informed by research in educational psychology:

Learning is a process whereby students actively construct knowledge (constructivism).E-teachers should facilitate this.

Students must practice skills in situations similar to those in which they will be used (contextual/situated learning and problem-based learning). E-teachers should develop robust simulations based on their practical experience..

Multiple media can enhance learning when different cognitive processes are stimulated (cue summation theory). E-teachers should use the most efficient mix of media for the educational task.

People who design e-education programs that reliably improve medical student and physician performance may be supported by instructional designers, but these people are true e-teachers. We need more of them.

In relation to this topic, the objective for technology in medical education is that, “We need to set a high standard that fosters the development of medical e-teachers who can lighten the load of the next generation of medical e-learners”

I would also like to share our practice of using animations for teaching physiotherapy related medical subjects for our students which give them good and better understanding of the subject which are totally new to them. I have found that students with different medium of instruction (both Tamil and English) benefit equally from this type of teaching. Pictorial representation will be easily understood and can be recollected soon. With this objective, the students can be taught using animations and the students can be assessed through a quiz following the teaching through animation. I am attaching a website where we have illustrations for animation based teaching which is an effective web based teaching tool for easy learning.

[http://highered.mcgraw-hill.com/sites/0072495855/student\\_view0/chapter10/animation\\_\\_breakdown\\_of\\_atp\\_and\\_cross-bridge\\_movement\\_during\\_muscle\\_contraction.html](http://highered.mcgraw-hill.com/sites/0072495855/student_view0/chapter10/animation__breakdown_of_atp_and_cross-bridge_movement_during_muscle_contraction.html)

**Supten:**

Thanks to Ravi and Barani for sharing their views.

As mentioned in the URL

[http://meld.medbiq.org/divergent\\_views/better\\_eteaching\\_harris.htm](http://meld.medbiq.org/divergent_views/better_eteaching_harris.htm)

provided by Barani, our focus should be more on e-teaching rather than hoping for (self) e-learning by the "students".

At times a teacher or instructor or mentor (look out for the October 2008 discussions here!) can indeed make a huge difference. However, even great motivators can only take a horse to the water without being able to make him drink.

Two major impediments for e-learning (taking our ML-Web as an example) seem to be

(A) Time (How many of us are effective time managers? It is said that persons who don't respond promptly either are too busy or too lazy! Since none of us are lazy, we must be terribly busy to even read the mails - not to think of responding!)

(B) Computer-friendliness and/or access

A third reason holding us back from online discussions could be lack of confidence or a feeling of inadequacy.

However, the third reason should not be tenable because this is supposed to be a "peer" group that has been selected by International Faculty on "strict standards".

My personal opinion is that if each of us can contribute (at least once) to this month's discussion, we would actually be demonstrating a "successful implementation" of "technology in medical education" in real life.

Here's another take on "Teaching with Technology":  
<http://biology.plosjournals.org/perlserv/?request=get-document&doi=10.1371%2Fjournal.pbio.0060086>

**Nalin:**

Great articles Supten.

No amount of technology will help if it is superfluous or distracting. The use of Chalk and board is an art, and still very useful and effective teaching tech. The OHP & powerpoint sessions can 'send' the students into a spin as they get busy jotting down notes and not 'listening' to the teacher.....

No matter what modality (technology) you use, your main objective should be to actively involve the students.....in a meaningful discussion by covering the topic (being taught) comprehensively.

## **Important points/new concepts discussed**

Specification of objectives of using technology in medical education

Resistance to change- how to deal with it

To stress more on e-teaching than e-learning

GIS,GPS in medical education;smart cards

Technology in 'soft skill' of medicine/medical humanities

## **Second week (available technologies – and their pros and cons)**

**7-06-2008**

**Feroze:**

We're moving into the second section of our discussion on technology in medical education from tomorrow. We'll be dealing with available technologies – and their pros and cons. I think, like Supten suggested in one of the previous mails, we might try to discuss in detail a few specific headings, along with the broad discussion topic. eg: 'Technology available for student assessment'. Love to hear all your views.

Also I've started this thread with 'available technologies-pros and cons' in the bracket in the title, it would be nice if everyone maintains the title header in their mails in this section

**8-06-2008**

**Feroze:** I suppose one of the commonest tools available for medical education (or any education for that matter) are visual aids. Ravi has already dealt a bit with common things like the black /white boards, flip charts, OHPs, LCDs etc. I am attaching a link which gives simple tips on the use of visual aids in presentations /classes.  
<http://www.uab.edu/uasomume/fd2/visuals>

**Padma:**

Dear FAIMER family, I agree Feroz, education can be made more effective through visual aids. Thanks for the link you sent. I would like to add

this site which includes many views in medical education.

<http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/visuals.htm>

I am attaching the file which gives various types of visual aids and their advantages and disadvantages.

**9-6-2008**

**Jyoti:**

Dear Padma and Firoze

Thanks for sending the useful links on Audio visuals, myself and sudha were leading the discussions on A-V aids in the year 2007.

**Supten:**

Dear Jyoti,

Nice to see you participating actively in the discussions.

It will be great if you can kindly upload the summary of the discussions on AV Aids (that Sudha and you had moderated in December 2007) at: [http://psg-faimer-](http://psg-faimer-2007.wikispaces.com/Index)

2007.wikispaces.com/Index

in the designated space, for the benefit of all of us.

**Vimal:**

Hi Feroze and group,

While we are on this section, I wonder if there is any place for medical education in "Second Life". I know there are virtual universities and the fact that students have found this a good experience. Can any of the fellows (or their "avatars") throw some light on this?

**Supten:**

Dear Vimal and Others,

Last year (during the August 2007 Discussions on "Distance Learning") Ravi had initiated us to "Second Life".

Here are some pertinent information regarding medical education there:

[http://blogs.usask.ca/medical\\_education/archive/2008/03/medical\\_educati.html](http://blogs.usask.ca/medical_education/archive/2008/03/medical_educati.html)

AND

<http://sciencereoll.com/2007/06/17/top-10-virtual-medical-sites-in-second-life/>

Also, Janet's Open University has a presence there:

<http://www.open.ac.uk/colmsct/activities/details/detail.php?itemId=478b5caf2c3f7>

With warmest regards

Supten

PS: Despite the fact that I do have a login there, logistical problems have prevented me from gaining further first hand knowledge.

**Barani:**

Here are few web sites regarding pros and cons of using technology for medical education.. I am also attaching a word document which deals on “Electronic Classroom for Teaching Undergraduate Students”

1. [http://horizon.unc.edu/projects/monograph/CD/Science\\_Mathematics/Seeburg.asp](http://horizon.unc.edu/projects/monograph/CD/Science_Mathematics/Seeburg.asp)

This web sites deals about the topic: Computers in the Biology Lab: An Integrative Approach

Advantages:

Using several examples of laboratory setups, the integration process, albeit sometimes not an easy one initially, is shown to be beneficial to the learning experience of students in life science classes. In particular, topics such as cybertesting, feedback mechanisms over the Internet, and molecular modeling in the classroom are explored and evaluated as to their efficiency for both teacher and student. Furthermore, the technologies used in the laboratory setting of life sciences classes are projected to be of considerable value in other science and liberal arts class settings given appropriate setup time and organized planning.

Disadvantages:

As there are two sides to a coin there are obstacles implicit in the process of setting up a structure such as this. Foremost, rigid administrative structures impair reasonable advancement in teaching and in incorporation of new teaching technologies. This can be found anywhere and is, of course, not restricted to a university setting. An example is that Information Technology departments may offer little or no help to instructors wanting to offer computer resources in classes other than information technology classes.

Secondly, many students do not have prior computer-assisted instruction experience. Thus, they feel uncomfortable and unwilling to try the new technologies. Also, students expressed dismay over the unavailability of computers in campus computer labs. Currently, another hardship inevitable at larger school settings is limited dial-in computer access to graphical software for undergraduate students. Despite the

advancement in information technology equipment in high schools, it cannot be expected that students have experience writing reports using computers.

Also, an information network of like-minded instructors who also incorporate information technology resources into classes is desperately needed. This would address concerns, questions, and problems and provide a forum for solutions.

Lastly, grading computer-assisted tests can be time-consuming, if little or no assistance by computer professionals is available.

2. <http://www.ruf.rice.edu/~pomeran/snowmass.htm> : This web site tells about.....

Twenty Anti-technology Sentiments:

Why some members of university community resist change, or the Luddites' Lament

3. [http://findarticles.com/p/articles/mi\\_qa3860/is\\_200201/ai\\_n9050582](http://findarticles.com/p/articles/mi_qa3860/is_200201/ai_n9050582)

This website gives useful information on the topic conference looks into pros and cons of the technology for education:

**Komala:**

Dear Vimal and Supten,

Had never heard of "Second life"

Thanks for the links

**Shital:**

Dear Padma, Barani and Others,

Thanks a lot for sharing wonderful resources. I am learning a lot from them. I think every technology has pros and cons but we have to take the useful things and leave out the not very useful ones

**Supten:**Dear Feroze,

The link that you have purveyed is excellent!

Barani has also sent a few great links (though in a different subject header!).

However, still the number of "silent readers" seem to be rather high!

**Chitra:**I am feeling overwhelmed by the volume of mails.

The whole process is new and interesting.

There are so many sites and links, I for one always feel the constraint of time in sitting before the computer for hours on end. In college after daily duties there is not much time left and many times the connectivity is poor which is frustrating. At home, we again have too many roles to play.

of course I am cruising through the mails but don't think I have that kind of time and energy to go through all the web sites listed.

Am I the only one who feels like this or there are others also?

**Feroze:**

Never thought of 'second life' as a possible source of serious medical education (or any kind of serious education for that matter). ,but the links Supten posted make me think otherwise ..especially the link to the top 10 virtual medical sites.Some of the videos posted there are really great.Another related site you should see is <http://secondhealth.wordpress.com/> and <http://secondhealth.wordpress.com/movies/> , the videos especially are quite good and can probably be used as basic educational tools for patients as well as pre-clinical students

Incidentally ,in a lighter vein ,there's a fantastic spoof site of "Second life" ...<http://www.getafirstlife.com/>..(and by the way ,except the links nothing else works on the site!!)

Jyoti ,thanks for the comments.Like Supten mentioned ,it would be nice if you could upload the transcript of your session on AV aids.We might really pick up a lot and also avoid too much of repetition.

Barani,that was a very useful resource.It's also nice how you give a small summary in the body of the mail itself.Many times I feel quite lazy to follow all the links!!

**Chitra:** It was only today, that I got time to go through this full mail. It is full of information and gives so many perspectives on Technology in Medical education. Keep up the good start.

The down side is it took me the whole of two hours to go through this whole list!

**Animesh:**

Thanks Supten and Vimal,I never knew that such a thing called "Second life" ever existed. Checked out the sites.

Hi Barani,

Thanks for the resources. But I just wanted to know the source of the word file. If its a journal article or from anywhere else, please mention the source in the document. We can even use it later.

**10-06-2008**

**Supten:**

Dear Feroze,

Thanks for gifting us a wonderful "First Life" site!

Dear Chitra and Others,

All those of you who are feeling overwhelmed by the listserv traffic load, here are a few tips:

1. Please check your mailbox daily at least once!
2. You may first read only the mails which are interesting to you and visit only 1 or 2 links (if there are more listed in the mail).
3. You may copy all the URLs in a separate text file and visit them when you have more time in hand.
4. Ditto for the downloaded attachments.
5. Kindly respond to the most interesting and / or useful mail that you came across, so that the sender knows that someone at least read the mail and found it worthwhile.

**Saira:**

Dear Friends,

Phew! Took me some time to wade through the traffic. Feeling exhausted but happy.

The discussion is going full throttle with excellent contributions from Shital, Barani, Animesh, Komala, Ashwini Padma, Amol , Ravi, Subodh of course with the ever resourceful Supten responding to every mail (bear with me for understating your contribution, Supten!). Thank you all for facilitating/ enlightening.

With Feroze at the helm, the members of the June discussion group are providing variety with flexibility and its a sincere apology I extend for silently learning, without duly acknowledging their hard work. Attempting to compile the first week summary is commendable and a good practice to adopt, given the volume of discussion. Good work, Feroze.

Chitra, I too have had some hectic schedules and I agree with you that working at home at most times is impossible. Try and download a thread and save it up as a copy for reading offline. Any which way, don't miss out the wonders of technology that you and I as individuals may never have otherwise been enlightened with.

Falling bait to Feroze's topic thread on "Technology in student assessment", the scope I realized is tremendous. Computer based testing is not just an alternate method for student assessment and a peep into using this technology maybe worthwhile, as the paper by Cantillon et al (enclosed) illustrates.

Kelly et al's paper (enclosed) on a computerised evaluative learning tool is yet another take on using technology innovatively and optimally.

I am sure there is a lot more...

**Barani:**

Dear All,

I would like you all to look into this website:

<http://www.shkaminski.com/Classes/Handouts/powerpoint.htm#For Teachers>

which deals about the powerpoint presentation on the following headings...

The Pros and Cons of PowerPoint

What PowerPoint does best

What else you can do with a projector

PowerPoint Strengths

PowerPoint Weaknesses

PowerPoint Tips

**Nirmala:**

Hi Chitra,

I second you. With the administrative, educational and personal responsibilities, most of the time I can not even open my computer. If I sit, I find it difficult to put a stop. Even now, I just thought of spending 30 minutes, but it has exceeded 1 1/2 hours. The experience is unique as you have mentioned. It takes our time. But, we have committed ourselves. Let us try our maximum to learn first and sometimes by contributing to their entire effort.

**Animesh:**

Dear Supten and Saira,

Thank you for sharing some valuable info and the tips that u have given us.

I agree with a few others that it's difficult to cope with the volume of mails that we are getting given the academic schedule & duties and hectic personal life. Again Chitra takes the lead in bringing up the issue. Anyhow, that's where good management skills and time management skills are put to test. It also helps to skim through most of the mails quickly at least once and flag or mark them for reading or action later. Sorting in folders is also useful as already stated by Feroze and others.

Though I'm writing this, I too am unable to read in detail each and everything which is being posted on listserv. Still I'm managing to at least glance through most and read the more interesting ones. I'm also making an effort to respond at least once in two days if not everyday. That way the backlog also gets reduced. Besides, the first thoughts which we get are always the ones which we need to share, else we may lose them if postponed. Anyway, I'm sure majority would agree that we are learning something new almost everyday. Kudos to the moderators and Feroze in particular. I feel we the moderators of next few WebML have to learn from these guys.

**Ashwini:**

Talking about technology in medical education -its pros and cons is a big topic and a few aspects has already been discussed in the first week.

according to me, every technology has an advantage and disadvantage. the advantages has already been listed in the objectives.

technology saves time

technology allows minimum resources

technology allows to address a large gathering

technology help[s to communicate to far of places as in teleconferencing and telesurgery, telemedicine. this helps in instant collaboration between countries, communities thus bridging the gap

technology can be used for better comprehension and in emergencies it is a boon because of communication.

talking about the disadvantages

the one who uses technology has to be a computer savvy, update himself with the new advances and methodologies.

in our setup, the university should be able to standardise the methods and proper training should be given to the faculty, and uniform infrastructure should be there in all the medical colleges.should be well equipped. all this needs a lot of financial resources and trained personnel.

to the attitude of indians ( not to hurt anyone) motivation of the faculty to use appropriate technology is a challenge.

there should be time to time updation of the advanced technologies and continuous usage of it. disuse of the technology leads to forgetfulness and incompetetiveness of the individual.

overall, it is a big job to be done under constant motivation.

**Supten:**

Dear Ashwini,

Thanks for the nice summary of "pro"s and "con"s!

Nearly a decade back there was an excellent article on why the outstanding teachers (technocrats) enjoy teaching: <http://scholar.lib.vt.edu/ejournals/JTE/v9n2/wright.html> where they found that nearly 21% of the faculty found "Enjoyment and stimulation of learning and using new technologies" and 15% cited: "The rewards of making a meaningful difference in the lives of students".

Now, it is actually the turn of the modern students to demand more:  
[http://www.edweek.org/dd/articles/2008/06/05/04art\\_web.h01.html](http://www.edweek.org/dd/articles/2008/06/05/04art_web.h01.html)  
and, as teachers, we need to appreciate that and keep ourselves up to date.

### **Feroze:**

The articles send in by Saira, Supten and Barani were really informative, and nice little sum-up by Aswini. Hate to play the devil's advocate, but just like to highlight some of the 'cons' associated with technology in medical education. To quote from the article by Kelly that Saira said-

“It may only take one obstacle or delay in getting started with an unfamiliar tool, particularly with IT software, to reduce motivation and make the individual less inclined to use the tool. Therefore, any IT software has to be as easy to use as possible and has to allow instant access to technical support. Users were most satisfied when they had access to CELT at home and at work. They recognized that while they should ideally be using CELT during working hours, it was in reality often used at home”

I suppose ultimately most of the computer assisted learning methods and computer based assessment techniques would work best when it is freely available online, so that both the student and the teacher can use it at their convenience or leisure (If you have a wild imagination and can think of studies as leisure!!!). I had a focus group discussion with my students on the digital module I'm using in dermatology, and one thing all of them agreed on was the need to have the freedom to access such a module at anytime of their convenience. Another article by Ward et al, in Lancet, [http://etc.sjtu.edu.cn/paper/Communication and information technology in medical education.pdf](http://etc.sjtu.edu.cn/paper/Communication%20and%20information%20technology%20in%20medical%20education.pdf), sites potential dangers for Information tech in medical education. – poor educational design, failure to integrate IT with curricula (and to keep it up to date), failure to link teaching and assessment, and failure to exploit the problem-solving and visual aspects of the medium. The article also says that a possible failure of IT in medical education would not be limited to hardware problems, but includes failure of content, poor security and protection against malicious attacks (hackers), and insufficient protection of patient confidentiality and of intellectual property rights. “There is also the very real danger that we could disenfranchise less affluent students. There is a corollary here concerning developing nations. Although the web allows global access to information, the cost of this information, and the technology required to make best use of it, could lead to a widening of the gap between the quality of medical education available to the haves and have nots”

**Muhammed:**

Thanks for recommending many sites. It's like attending a feast those are hungry will tend to take. gluttons will take more. but I prefer to taste all

**10-6-2008**

**Subodh:**

While surfing, I came across resources on 'Learning Spaces'. And, these resources are relevant to the topic of the month 'Technology in Medical Education'.

When we use the term 'Learning Spaces', our attention focuses on the classroom - physical space designed to support the face-to-face teaching. While the classroom can still be regarded as the core 'Learning Spaces', it is obvious that the technology has provided lots of settings for teaching and learning. And, therefore, the term 'Learning Spaces' are being used to capture these wide range of venues for teaching and learning.

I am sending a few links for 'Learning Spaces' that I discovered during websurfing yesterday:

<http://net.educause.edu/ir/library/pdf/eqm0312.pdf>

<http://net.educause.edu/ir/library/pdf/NLI0447.pdf>

If you get interested to learn more about it, here is a thick e-book on 'Learning Spaces'  
<http://net.educause.edu/ir/library/pdf/PUB7102.pdf>

I also found that 'Learning Space' is the name of a software developed by Lotus. I was not able to find more information regarding this software OR may be I did not had enough time and patience to do so. I request our technology Guru, Supten, to throw some light on this software. I know about a software which helps to design and broadcast online classes where the participants can interact with the resource person and also with each other. There is facility so that the teacher can ask questions to the participants and evaluate their response. This software is 'ELLUMINATE'. Actually, I had participated in an online lecture session in which this software was used. I was fully impressed with the kind of facilities this software provides. If you are interested, you can learn more from the homepage of ELLUMINATE: <http://www.illuminate.com/>

Happy learning through the learning space provided by listserv,

**Thomas:**

Dear Nirmala,

Welcome to the Internet and Listserv! That's a "Pro" for technology in education. This is how most of us got "hooked"!

All of us are busy people but we must learn to allocate protected time for this "Faculty development" process (yes that's what it is, and you must tell that to people who comment on how much time you "waste" on the computer. You would have realized by now the "accelerated learning" that takes place through the listserv discussions and the access to educational resources you would not have had left to yourself. It would be interesting to "audit" how many new things you learnt in a month through on-line discussions and then show it to your Boss or immediate superior and get them hooked too!

**Supten:**

Feroze is doing a commendable job of summing up the discussions - almost in real time. The paper he has alluded to (Ward et al 2001) states that Information and Communication Technology (now the universally accepted acronym is ICT) "can provide powerful tools for learning and teaching in medicine, and will alter the way in which the subject is taught. However, the pace of technological development and the drive to incorporate such technologies into the curriculum threatens to outstrip our understanding of how they can be used most effectively, and indeed the ability of our teachers to use them at all. If we are to avoid this, we must proceed on a firm basis of educationally sound design, rigorous evaluation of educational cost-effectiveness, and, above all, provision of adequate training for teaching staff." In a nutshell it stresses upon the fact that teachers have to be adequately trained (as Alvin Toffler has said in "Rethinking the Future": "The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn")!

Thanks to Subodh for providing us the interesting links. As requested by him, I am giving a pointer about Lotus LearningSpace:

<http://www.pugh.co.uk/products/lotus/learningspace.htm>

I have no first-hand experience with it.

Here is an example of "LearningSpace" in the Open University of UK:

<http://openlearn.open.ac.uk/course/filter.php?grouping=topic&detail=6&order=date>

To make our discussion more thought-provoking, Subodh's reference to <http://net.educause.edu/ir/library/pdf/NLI0447.pdf> focuses on "Learner-centred principle: Active Learning" that is precisely what Barani's citation: [http://meld.medbiq.org/divergent\\_views/better\\_eteaching\\_harris.htm](http://meld.medbiq.org/divergent_views/better_eteaching_harris.htm) cautions against!

This brings us to an interesting debate on whether the technology should be utilized to prepare better "self-learners" or for "enabling and empowering" the "teachers/mentors/instructors" to develop more easily understandable and useful academic content?

Any takers for the debate?

**Ravi:**

Dear Subodh

Thanks. Sending a brief write up on Second Life

Second life is an immersive technology where people can interact in a virtual environment through their 'avatars'. An avatar is basically a virtual persona or projection which represents a real person in the virtual world. (Correct me if I am wrong, Supten). The avatars can carry out various functions in 'Second Life'. The technology has a huge potential to revolutionize teaching and training.

Many western Universities have purchased 'slices' of real estate in Second Life which they use for training and educating their students. In the August discussion last year we had discussed various aspects of 'Second Life'.

Recently I read an article in a business magazine about the limitations of second life. Second Life is basically a convergence of the internet, 3D games and peer-to-peer networking. Second life is immersive, distributed and can be used for building 'metaverses'. The article states that there are problems with the technical edifice on which our internet lives are built. The architecture presently used was designed for two dimensional computing. Adding another dimension requires a tremendous increase in bandwidth and processing power according to the author.

According to one user, the Second Life population is still relatively small and less than 45, 000 users are logged in at one time. With low number of users logged in it is difficult for them to find something substantial to do. Another problem as experienced by Supten may be the difficulty in logging on. There are problems of lack of openness and the cost prohibitive

Recently a number of computer geeks have got together to create a new technology called 'Croquet'. At present, croquet is more a platform. Croquet has been said to be a development platform that allows for radical collaboration in immersive online environments. It is said that Croquet will eventually absorb the internet. Humans have

evolved in a three dimensional world and have a greater capacity to process and assimilate information in three dimensions. Croquet is built to transcend the boundaries of both operating systems and geography.

**Supten:**

Dear All,

Thanks to Ravi for enlightening further on Second Life.

Here is the link to Croquet:

[http://www.opencroquet.org/index.php/Main\\_Page](http://www.opencroquet.org/index.php/Main_Page)

OR

[http://www.croquetconsortium.org/index.php/Main\\_Page](http://www.croquetconsortium.org/index.php/Main_Page)

The consortium is presently funded by major corporations, governmental agencies, universities, smaller companies, and individual donors. Members include:

Duke University

University of Minnesota

University of British Columbia

University of North Carolina at Chapel Hill

HP

Intel

**Sylvester:**

Dear Chitra and team,

I do share the same concerns that you expressed in your mail. I hardly ever check my mail as a habit. This is compounded by the unpredictability of my internet connection.

Still gathering thoughts Technology and medical education. This technology is sure getting me stressed out.

I am at present working on a topic called "CYBER SUICIDE". The role of internet in facilitating suicides. I do not know how many have heard of this phenomenon. If anyone has information or would like to share their thoughts about this topic, do mail me as it would be useful for my presentation.

However that is far removed from Medical education but it still qualifies as Educational.

**Supten:**

Dear Sylvester,

The term "cyber suicide" is used for 2 meanings - the one you are looking for but among the Netizens, the commoner one is "killing of (one's) online identity".

Here are a few relevant links:

<http://www.caslon.com.au/cybersuicidenote.htm>

[http://en.wikipedia.org/wiki/Internet\\_suicide](http://en.wikipedia.org/wiki/Internet_suicide)

<http://www.news-medical.net/?id=6615>

<http://www.menstuff.org/issues/byissue/cybersuicide.html>

<http://babbly.com/latest/cybersuicide-uk-man-commits-suicide-live-on-webcam.html>

**Medha:**

Dear All,

I agree with Chitra about the time constraint. The tips given by Supten, as usual, are very useful. I would like to add one more to it: please mention the relevant subject in the mail and don't mix up the topics. This way you are sure to read the topics of your interest first, without going thro' every mail.

**Feroze:**

Thanks Ravi and Supten for introducing the concept of 'Croquet'. I had never heard of 'croquet' before except as a sport. The concept and its possible use in education are very interesting indeed. For those who want a more simple understanding of croquet try this site <http://wistechnology.com/articles/2376/> Supten has of course given the link to the official croquet consortium site.

The concept of learning spaces was nice too, and both articles mentioned by Subodh are simple, concise and very informative. About 'cyber-suicides' in either of the two contexts it is used, it sounds morbid!! The best link I found was the first one in Supten's list <http://www.caslon.com.au/cybersuicidenote.htm>

Supten's idea of a debate on whether the stress should be on e-teaching or e-learning sounds very interesting. I'm sure we'll see a few comments on the same in the coming days. Personally I think (rather diplomatically) that the stress should be equal on both..with a wee bit leaning towards empowering teachers more!

**Sundar:**

technology in medical education is taking shapes I am attaching a file on simulation in medical education

**Thomas:**

This is in response to Feroze's comments on e-teaching vs e-learning . I would qualify the "empowering the teachers" part to enable them to facilitate e-learning by students / learners.

**Supten:**

Thanks to Sundar for uploading the resource on simulation. I have had the opportunity to carry out some of these at my previous Institute (AIMS, Kochi) and the student feedbacks were very encouraging.

Reem, thanks for resending the article that Feroze had uploaded on June 06.

With Feroze and Thomas chipping in with almost identically diplomatic responses, it will be great to see if anyone would like to stress more on either "e-learning" or "e-teaching" concepts alone!

**Thomas:**

Reem sent a "treasurehouse resource" from which I have culled out important nuggets to emphasize the issues under discussion as well as principles & theories of teaching/learning in general:

To start with is the pdf which lists the advantages disadvantages of computer aided instruction

The next two will be helpful to all fellows who have a technology related FAIMER project to complete:

The ADDIE framework

Matching technology to goals

For those educators who want to ground their curriculum interventions on educational theories the following appear practicable:

Gagne's Nine events of instruction (which can also be used for designing observation checklists)

Ericsson's model of deliberate practice to improve skills / professional performance

There you go... too much "dose" of education for one day? Believe me it is worth it.

**Supten:**

Dear All,

Kudos to Thomas for painstakingly mining out the treasures from the Resource originally posted to the listserv by Feroze on June 06.

I'd like to illustrate an example from my CIP that was presented during our Session-III at PSG-FRI in April 2008.

The object of discussion is a videography of a dental procedure (Inferior alveolar nerve block).

Put into the ADDIE Framework:

Analyze Analyze relevant learner characteristics and tasks to be learned

Initially it was analyzed that the students cannot understand clearly the finer details of the procedure by simply hearing to a lecture or from seeing the procedure being performed by the teacher.

Design Define objectives and outcomes; select an instructional approach

The Objective was to describe the procedure and the outcome was to be measured theoretically by viva-voce.

Develop Create the instructional materials

The instructional video was taken during the actual procedure on a patient, and the videography was done by another domain expert (NOT a professional videographer) who knew well the finer details.

Implement Deliver the instructional materials

Initially the procedure was described through lecture and later the procedure was shown live to the students (both by the same teacher who also performed the procedure for the video).

Evaluate Ensure that the instruction achieved the desired goals

Viva-voce was taken thrice (immediately after the lecture, after the lecture and procedure, and finally, after the lecture, procedure and video display).

Put into Robert Gagné's Nine Events of Instruction it is:

1. Gain attention—Capture learners' attention by developing an online interactive tutorial.
2. Inform learners of educational objectives - The students were explained the objectives clearly.
3. Stimulate recall of prior knowledge—In this particular case, the lecture and the demo helped them in recall
4. Present the material—Present logically organized information (or practice) to avoid cognitive overload. It was done sequentially, as explained above.
5. Provide guidance for learning— Students were offered specific guidance in accordance with their queries.
6. Elicit performance—Here only the viva-voce was taken. As the next step it may be tested on real patients (or simulators if available).
7. Provide feedback—Students were provided with specific, constructive, and immediate feedback regarding their performance.
8. Assess performance—As described in #6.
9. Enhance retention and transfer—Review the material for add-on features.

**Thomas:**

Dear Fellows,

Supten by applying the framework and the learning theories in retrospect has demonstrated that they can be used for reflection as well as evaluation of the work that you have done... a kind of post-validation

It will be more useful prospectively when you are in the planning stage like all the 2007 fellows when you use conceptual frameworks , program theory as well some well established model for planning and evaluation (like the logic model we use in FAIMER) so that it is more likely to result in a work of educational scholarship which culminates in its publication in a journal.

Some journal reviewers specifically look for usage of these and if they are absent, undervalue the work!

**Supten:**

Dear Thomas,

Thanks for pointing out to the broader use of "technology" for medical education. Indeed, computers form only a small part of "technology" that can help in advancing education.

Wikipedia [[http://en.wikipedia.org/wiki/Educational\\_technology](http://en.wikipedia.org/wiki/Educational_technology) ] defines educational technology as "the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources." based on Richey, R.C. (2008). Reflections on the 2008 AECT Definitions of the Field. TechTrends. 52(1) 24-25.

Here, "Technology" can refer to material objects of use to humanity, such as machines, hardware or utensils, but it can also encompass broader themes, including systems, methods of organization, and techniques.

Further, those who employ educational technologies to explore ideas and communicate meaning are learners or teachers.

**Saira:**

Dear Dr. Thomas, Supten, Feroze and friends,

Thanks for precisely stating and bringing in the rest of the 'pie' of technology into focus.

Computers, undoubtedly have a vast scope and is the sky even the limit?

However, during the last week when we listed the objectives and in the sidelines explored the scope for technology, we sure have room for discussing all the others available, keeping in line with the theme of the week. ['Technology in medical education' (available technologies-pros and cons)']

Usage of conceptual frameworks and theories to deal with projects is an important learning issue that has come up as we swim our way through technology. Thanks Sir, I am sure we will find adequate and appropriate use for the frameworks, though not with the speed Supten manages!

Looking forward for more on this topic.

**13-6-2008**

**Supten:**

Dear Feroze,

I echo Ravi in acknowledging the fact that you are moderating the monthly topic excellently.

I have recently completed an e-learning course on HL7 or Health Level 7:

<http://www.hl7.org/index.cfm>

I am attaching a screenshot of the Course Outline. (In case any of you are curious to know my final grades - well that was about 8.7 out of 10).

e-teaching doesn't mean "simply uploading" some course content! The more important and useful aspects are "mentoring" (we'd revisit that in October 2008), time-bound assignments, feedback on completed assignments and allowing corrections, if within the stipulated time frame, correction of quizzes with justification for the answers, responding to any query whenever raised - asynchronously. Additionally forum postings, discussions, blogs all are encouraged and helpful. The assignments are open-computer type (i.e., anyone can answer with help from the Internet), yet, progressively tougher as more and more difficult concepts are introduced.

Obviously more earnest e-learners like me can get more out of such course compared to the "silent learners".

Therefore, I fully agree with Salmon [2002].

Regarding the questions on simulators that you have raised, here are a few pertinent issues.

A flight simulator (now universally used for Pilot training) is as good as the real aeroplane unlike any "human body part" simulator. Why? Since man has made the design and knows the minute details of the working principles, which is not the case with any "living organism"!

So the most important aspect of simulator is "realism" - that means how closely does the simulator mimic a real clinical / morbid condition with all possible anomalies?

Here are 2 useful links for further info:

<http://www.medsim.com/profile/article1.html>

<http://www.immersion.com/medical/benefits1.php>

The pedagogy, the construct and the content validity of simulators are very essential and in some cases the simulators are better than real patients!

Looking forward to more active participation from all the Fellows.

**Saira:**

Dear Feroze, Supten and friends,

Its a really interesting turn the June discussion on technology is taking. Feroze has very nicely steered the discussion back on aspects of e-learning and e-teaching through an

interesting article by Badge et al. It triggered my curiosity to find out about the Blackboard learning system and for those of you if its as new as its for me, here is

[http://en.wikipedia.org/wiki/Blackboard\\_Learning\\_System](http://en.wikipedia.org/wiki/Blackboard_Learning_System)

The most salient features and the clarifications on e-teaching have already very well been brought up for discussion by Feroze and well supplemented by Supten. Interestingly, in the article (Badge et al) both the blackboard users and nonusers cited lack of time(of course, of course!) and knowledge as the factors preventing them from greater use.

The way forward then to improvise on e-teaching is through bettering e-learning. The link below is an interesting place to begin  
<http://elearning-india.com/content/view/271/26/>

Don't stop, click 'next' at the bottom of the page to know more on e-learning tools and the need for e-learning.

**Saira:**

Please allow me to share this link on e-learning that I missed to add in my previous mail, as I ballot for e-learning.

<http://www.cemca.org/e-learn.htm>

Click on this link for "E-Learning: A Guidebook of Principles, Procedures and Practices". It deals with interesting aspects of e-learning such as attributes of e-learning, Contemporary trends and practices, e-learning management systems, collaborative designs for e-learning, assessing learning outcomes, e-moderation, and evaluation of e-learning environments.

**Supten:**

Dear Saira,

From your link (Som Naidu's ebook on elearning), I found this:

"While creating opportunities for learning, online learning environments also create demands on learners for new skills in managing their own learning. Being successful in such learning environments requires learners to have the ability to organize, evaluate, and

monitor the progress of their learning. Not all learners possess these skills, and so they have to be taught how to take advantage of the opportunities that online learning affords." (p.40).

In response to your earlier mail, I'd point to a seminal article:

<http://www.biomedcentral.com/1472-6920/6/41>

Some useful and relevant URLs:

[http://www.nlm.nih.gov/pubs/techbull/mj05/mj05\\_rss.html](http://www.nlm.nih.gov/pubs/techbull/mj05/mj05_rss.html) [RSS from PubMed]

<http://library.ucsf.edu/collres/reflinks/blog/> [Blogs for Medical Education]

<http://mhsla.wordpress.com/tag/medical-education/>

<http://casesblog.blogspot.com/2007/01/medical-wikis-may-change-way-we-study.html>

[http://blogs.usask.ca/medical\\_education/](http://blogs.usask.ca/medical_education/)

### **Feroze:**

Those were a wonderful set of links sent by Supten and Saira, especially <http://library.ucsf.edu/collres/reflinks/blog/> [Blogs for Medical Education]. The variety and quality of the blogs here are really great. One of the blogs posted on the site (under the category of 'medical education' ) might be useful for all of us - <http://mededlit.blogspot.com> . It deals specifically with literature search on medical education.

The link on eLearning given by Saira was very informative too. One of the sections concludes that 'eLearning must be sold to the employees' .... maybe in the next segments we could discuss how exactly this 'selling' can be done effectively. Convincing some people regarding eLearning, or any technology driven initiative in medical education can be really difficult!

There's a chapter 'Instructional Technology in Medical education' by Kenneth B Williamson in the book ' Teaching and Learning in Medical and Surgical Education: Lessons Learned For the 21st century' (editors: Linda H Distlehorst, Gary L Dunnington, J Ronald Folse) which gives a very detailed description of the uses ,limitations and the future of technology in medical education. This particular chapter is available (in whole ) on google books. The book itself is a 2000 edition, so some of the latest technological concepts may not be present, but it wonderfully sums up the what ,how and why of using technology in medical education.

[http://books.google.co.in/books?id=HGAAvBDExYC&pg=PA132&lpg=PA117&ots=DxHOMb\\_pnl&dq=%22medical+education%22+technology&output=html&sig=xE\\_N1sxtIhLp5yIhLdfKYBO5IFM](http://books.google.co.in/books?id=HGAAvBDExYC&pg=PA132&lpg=PA117&ots=DxHOMb_pnl&dq=%22medical+education%22+technology&output=html&sig=xE_N1sxtIhLp5yIhLdfKYBO5IFM)

PS: Supten, is there any way to save the google book search results into a word format? I know the OCR in Microsoft office works, but its a bit tedious to save it as an image file then go through OCR ...and even then multiple corrections are often required.

## **Important points/new concepts discussed**

Basic AV aids /powerpoint presentation tips

Virtual universities ,second-life

Croquet consortium

E-learning vs E-teaching ,need to stress on the latter

ADDIE framework ,Robert Gagne's nine events of instruction

Learning spaces

Medical education blogs

## **Third week (Feasibility, innovations and improvisation)**

**15-06-2008**

**Feroze:**

I know everybody must be in a relaxed Sunday mood, still thought I'll start off this week's section today itself. Just to remind you, the sub-topic for this week is 'Feasibility, innovations and improvisation'.

I'm uploading a PDF, dealing with the concept of 'adaptive eLearning' in the context of medical education. This is again something which I'm really not familiar with. Love to hear others' inputs on the same.

**Supten:**

Soula et al [2001] says that: "Adaptivity management relies on the user level and educational project level. The strategy is in three steps:

- Building up the user profile,
- Selecting the projects most suitable for the user profile,
- Displaying a pre-planned list of the educational resources using semantic relationships."

I'd like to explain by taking this PSG-FAIMERINSTITUTE mailing list as an example.

User Profile: Suppose it is known that the user will not regularly check the emails, joining such an online learning opportunity may not be feasible at all. On the other hand if the essential requirement for the Final Certification mandates that the participant must actively discuss at least one topic that is not moderated by him/her, the user may be forced to change the habit.

Projects most suitable for the User Profile: Suppose I have never used any technology for education, I may not feel confident to speak out on the topic for fear of being branded as a fool. Therefore, it may be better that I moderate some topic which does not use any technology at all (is there even one like that?) Whether the participant is familiar with online discussions may actually be checked during the Selection process itself - otherwise, as is the case with most of the exams (e.g a surgical procedure) the person may speak volumes on something without being able to do it correctly even once!

Displaying relevant resources: All persons cannot be interested in everything. Like it is said that a miserly man reads even the minutest footnotes in the printed book because he

has bought the whole book and not reading any part will be a waste of money! However, whether a learner is really interested in a particular resource can be best manifested if s/he writes to the mailing list the useful points from the topic. In face-to-face classroom, nodding of head or smiling can express that the student is attentive. However, in any form of e-learning only a posting / replying of a topic can have that effect. It is perfectly legitimate to write "I have not understood anything from the link posted / article attached by so & so". Or "I have not understood these particular points, can anyone please help me?" Absence of any response means either the person has not even checked the mails or has simply deleted all the mails without reading.

**Jyoti:**

Very well correlated example on adaptive learning, excellent!  
'I HAVE ALWAYS BEEN A SILENT READER'  
I feel guilty at times for not being able to contribute much for the discussion, especially to attach some useful resources because, I always felt my friends like you and many others would have already found more suitable one and also might have posted one as well !.  
Hence I always hesitated for doing this plus there is soo much to read on the list serve that, probly I cant spend time on finding more useful resource materials.

**Barani:**

Here is an article titled

"Medical education for rural areas: Opportunities and challenges for information and communications technologies",

from the website

[www.jpgmonline.com/article.asp?issn=0022-3859;](http://www.jpgmonline.com/article.asp?issn=0022-3859)

which describes specific technologies and their uses as educational tools, and identified opportunities and challenges presented by Information and Communication Technologies (ICT) use in medical education.

While there is a great opportunity to improve access to medical education, to improve the quality of education and to facilitate collaboration amongst individual learners and institutions; challenges do exist, especially for rural areas

**Saira:**

Feroze has segued us into the next section of the learning arc and I am still wading my way through the article (adaptive\_medidacte\_pdf.) and its many new learning issues. Thankfully, Supten has broken down the complexity with a very contextual example. The three level design of adaptive e-learning as the paper points out directed 'efforts to train teachers to the pedagogic aspects of web technology and to recognize their investment in e-learning'. I am left wondering in an (medical teaching) environment not yet fertile to e-learning and e-teaching, will this remain just a distant dream?

At this point, (since the issue has been brought up) I do have some candid confessions to make. In spite of the well moderated discussions, I do find toeing the discussion line arduous sometimes because of the newness of the topic. Everyone has something to say about e-learning, but are we communicating in the same language?

Often is the need to replenish the vocabulary... I found this collection of terms and their definitions to help us "speak" e-learning...

[http://www.learningcircuits.org/ASTD/Templates/LC/LC\\_OneBox.aspx?NRMODE=Published&NRORIGINALURL=%2fglossary&NRNODEGUID=%7bA1A2C751-7E81-4620-A0A3-52F3A90148EB%7d&NRCACHEHINT=NoModifyGuest#A](http://www.learningcircuits.org/ASTD/Templates/LC/LC_OneBox.aspx?NRMODE=Published&NRORIGINALURL=%2fglossary&NRNODEGUID=%7bA1A2C751-7E81-4620-A0A3-52F3A90148EB%7d&NRCACHEHINT=NoModifyGuest#A)

Barani, agree with you there are challenges in rural areas and the link to the article is [http://www.jpgmonline.com/temp/jpgm514301\\_044434.pdf](http://www.jpgmonline.com/temp/jpgm514301_044434.pdf)  
The article as a.pdf document was sent in by Animesh, on the June 4th and those of whom missed it then can catch it this time around.

**Supten:**

Saira, were you trying to be helpful or intimidating by pointing to the plethora of jargon / lingo / tech speak / geek speak ?

One of the definitions of "vocabulary" is: "all the words of a language" - and, certainly none of us need that - at least, right now!

Personally speaking, I'd be happy to clarify any doubts that any of you may have regarding e-learning vocabulary.

Jyoti, thanks for the nice words. However, participating in an e-group discussion does

NOT mean ONLY "to attach some useful resources". A rather far more important objective is to learn how to discuss. By saying that I don't agree with the views expressed in the link/article provided by so and so, the discussion can become more interesting thereby leading to a greater exchange of knowledge.

It is said that if I exchange an apple with you, both of us are left with one apple each. However, if we exchange an idea each, then both of us are left with TWO ideas! And, that is the most empowering aspect of e-learning where discussions among peers, as well as with senior faculty mentors can enrich the knowledge base of all.

It is said that you don't learn swimming unless you get into water. Similarly, unless one makes the habit of responding to some mails in the listserv, one'd never be able to do it. One can always start by writing only "I've read ... articles and / or visited the ... links and found them useful / useless." Then gradually the confidence level is bound to increase.

**Feroze:**

Supten,

Wonderful explanation of Soula's concept of three levels of adaptive learning. You really have a knack of making things simple.

Saira,

That list was pretty comprehensive!! At least now I know that 'ATM' does not necessarily mean a depressing place which keeps reminding me of my miniscule bank balance!!

I came across this doctoral dissertation from Karolinska University, by Italo Masiello, titled 'Learning in focus – rethinking the role of technology in medical education' (attached as a pdf)

It's a really detailed study and mentions virtually all components of 'technology in medical education' we are discussing about, including innovations and problems in implementation /feasibility.

He brings up some interesting concepts – like for example, how at present technology driven medical education tends to promote independent self-learning (more than collaborative learning or teacher centered learning)

Another interesting point he raises is regarding the apparent lack of good research methodologies suiting both technology and education together. Such methodologies would probably go a long way in understanding the best use of technology in education.

A bit surprisingly, in the concluding part the author says –'the belief that education applications could enhance student learning is simply speculative". He goes on to say that it is merely different, although not necessarily better than traditional teaching.

Comments?

(One of the links mentioned in the thesis – leads to the HEAL national digital library site,

<http://www.healcentral.org/> , which has an excellent collection of open access teaching material – including videos, animations, ppts and images. The sections on anatomy and physiology are especially nice)

**17-06-2008**

**Supten:**

For the Fellows interested in more advanced options on "assessing" "e-learning", you may have a look at:

[http://www.wikieducator.org/Evaluation\\_of\\_eLearning\\_for\\_Best\\_Practice/Assessment/Assessment\\_criteria](http://www.wikieducator.org/Evaluation_of_eLearning_for_Best_Practice/Assessment/Assessment_criteria)

Dear Feroze,

You deserve a hearty congrats for sending us Masiello's dissertation.

Unfortunately, none of us will probably be able to go through the entire thesis (lack of time, need, etc.).

Nevertheless, I'd like to quote a couple of points from there:

"The success of new learning environments ultimately depends on teachers and how they are able to efficiently use these tools for the transition. Therefore, teachers need to be informed not only about the students' different approaches to learning and about technology, but also on teaching and learning theories that promote a student-centred approach and a sense of community among online faculty and students."

"Peer learning is qualitatively different than that from the interaction between teachers and students, and the design of peer-to-peer online activity may allow students to learn from each other."

And, this listserv activity is an example of peer learning and it is upon us to become better teachers for the benefit of our students who deserve to be trained better!

**Feroze:**

Coming back to the problem of properly evaluating technology based medical education modules, I'm attaching another article by Rosset and McDonald 'Evaluating Technology-Enhanced Continuing Medical Education' regarding the need and methods to actually evaluate the effectiveness of technology enhanced CMEs. The article also goes into detail about the Kirkpatrick model which (as mentioned by Thomas Sir earlier, would be useful for many of our projects). The best part is the examples given at the end which clarify the concepts quite clearly.

Just an excerpt from the conclusion.

“It is not good enough to serve up a CME feast, even one that is rich with technology-based assets, without gathering data, rendering judgments, and continuously improving. Were those the right assets? Did they meet needs? Did they learn? Were learning and reference habits established? Is the program influencing even hard-to-measure actions? Are we attentive to issues of access and privacy?”

**18-6-2008**

**Supten:**

Thanks Feroze for once again providing an excellent article by Rosset and McDonald: 'Evaluating Technology-Enhanced Continuing Medical Education'.

The NRHM had formed a Task Force for medical education and the entire report is available at:

[http://mohfw.nic.in/NRHM/Documents/Task\\_Group\\_Medical\\_Education.pdf](http://mohfw.nic.in/NRHM/Documents/Task_Group_Medical_Education.pdf)

In that document, p.18 onwards their proposals are mentioned.

There have been certain responses to those at:

<http://nationalruralhealthmission.blogspot.com/2007/06/medical-curriculum.html>

Mangala, please let me know how will anyone understand that the mails and / or the contents attached / referred to in the mails have been read unless the reader actually writes to the listserv saying so? I repeat, the listserv is NOT just: "Many points are already covered I want to include. Probably others are faster to respond."; rather only

through a posted email stating "I have read the mail" the sender(s) know that the mail has been read.

The PSG-FAIMER Fellowship is a "Leadership Training Program" where, one of the questions raised by Rosset and McDonald "Were learning (and reference) habits established?" can be tested. Reading the emails and responding by writing only "I've read ... articles and / or visited the ... links and found them useful / useless." proves that new learning habits are being acquired.

Although we are discussing only about technology in medical "education", another related term "health technology" (dealing with healthcare applications/delivery) may also be relevant.

For further details, interested Fellows may visit:

<http://www.nlm.nih.gov/nichsr/hta101/ta10104.html#Heading10>

Another related term is "Health Information Technology" and the future expectations of the US Government are outlined at:

<http://www.hhs.gov/healthit/>

The American Health Information Community has various Workgroups (Task Forces or Special Interest Groups) assigned:

<http://www.hhs.gov/healthit/ahic/index.html>

If we take an example of the (Personalized Healthcare) Workgroup,

<http://www.hhs.gov/healthit/ahic/healthcare/>

a glance at the affiliations of the members of the Workgroup will reflect the need for multi-disciplinary interaction for quality healthcare delivery.

The fact that the Fellows of PSGFRI come from a varied background makes the group a potentially broad knowledge source. However, unless there is ample communication and interaction among us (through the listserv), there will be no flow of knowledge!

**Shital:**

Dear Supten,

Thanks a lot for the link. Indeed, I found the "health technology" very much important. I specially like its purpose as it covers the preventive, curative and even some aspect of palliative cares. Moreover, the Health Technology Assessment (HTA) more or less covers all the areas concerned with the well-being of a healthy society. Furthermore, the expertise needed for the HTA brings the integrated approach and thus enhances the quality of the assessment. Look forward to receive more comments from fellows and faculty on HT and HTA.

**Feroze:**

Another concept I've seen being discussed on the net with regard to innovations in medical educations is 'ePortfolios' especially in the context of student assessment.

Some basics about ePortfolios from wikipedia

“An electronic portfolio, also known as an e-portfolio or digital portfolio, is a collection of electronic evidence assembled and managed by a user, usually on the Web (also called Webfolio). Such electronic evidence may include inputted text, electronic files such as Microsoft Word and Adobe PDF files, images, multimedia, blog entries, and hyperlinks. E-portfolios are both demonstrations of the user's abilities and platforms for self-expression, and, if they are online, they can be maintained dynamically over time. Some e-portfolio applications permit varying degrees of audience access, so the same portfolio might be used for multiple purposes.

An e-portfolio can be seen as a type of learning record that provides actual evidence of achievement. Learning records are closely related to the Learning Plan, an emerging tool that is being used to manage learning by individuals, teams, communities of interest, and organizations. To the extent that a Personal Learning Environment captures and displays a learning record, it also might be understood to be an electronic portfolio.

E-portfolios, like traditional portfolios, can facilitate students' reflection on their own learning, leading to more awareness of learning strategies and needs”

I am also attaching a ppt about ePortfolios in medical education, from the Utrecht university ,Netherlands (Keulen et al)

**19-06-2008**

**Supten:**

Dear Mangala, Feroze and Others,

A concise description of e-learning is available at Wikipedia:

[http://en.wikipedia.org/wiki/Electronic\\_learning](http://en.wikipedia.org/wiki/Electronic_learning)

Regarding some links on Program Evaluation, I'm listing below a couple of user-friendly ones and a third one that is more didactic.

[http://pathwayscourses.samhsa.gov/eval101/eval101\\_toc.htm](http://pathwayscourses.samhsa.gov/eval101/eval101_toc.htm)

<http://omerad.msu.edu/resources/progeval/index.html>

<http://www.socialresearchmethods.net/tutorial/Abrahams/sbk16.htm>

I am also referring to a fifth link that talks on "collaborative learning":

<http://teaching.berkeley.edu/bgd/collaborative.html>

Here is a recent (2007) article (attached) on the effectiveness of e-learning on medical education (choules\_edu.pdf)

**Ashwini:**

dear supten,

the article was a good one. i wonder how you get the time to constantly and consistently respond to all mails. where is the time. kindly give us tips. really appreciated.

**Supten:**

Dear Ashwini and Others,

As you have inquired, I am sharing my time management tips!

I am usually always (obviously excluding the time for classes and / or official meetings) online between 8 am and 5 pm from Monday to Friday.

Habitually I respond to any (unless Spam) mail (either electronic or snail) the moment I read it (and that has its fair share of problems as well!).

However, for finding relevant articles (and URLs) online I do use certain "search techniques" that help me a lot.

To elaborate further, a senior researcher from Google had once delivered us a lecture on how Google tries to understand what we need. It is said that the computer is an idiot-box since "It does not do what I want it to do but only does what I tell it to do!" Therefore, in Google search, most of the times people type in only one (or at the most two) key words and do not get their desired results. He said that efficient executives may type in three keywords. However, if someone types "four" keywords, s/he must be a Professor!

I am attaching my article on this topic published in the inaugural issue of South East Asian Journal of Medical Education.

**Feroze:**

That was a really useful article. Having an active broadband connection in your clinic is really useful. However I suppose you need to have some amount of clinical sense to type in the right search word /phrases!! I am attaching the link to the famous 'Googling for a

diagnosis' article, by Tang and Kwoon -  
<http://www.bmj.com/cgi/rapidpdf/bmj.39003.640567.AEv1.pdf>

**20-06-2008**

**Supten:**

Dear Ashwini, Feroze, Mangala, Ravi and Others,  
Thanks for the appreciation.

Meanwhile, I got the correct link for the NRHM-proposed MBBS Curriculum and it had been uploaded (and the info posted and discussed in this listserv) more than a year back.

[http://mohfw.nic.in/NRHM/Medical\\_curricullam.htm](http://mohfw.nic.in/NRHM/Medical_curricullam.htm)

Another similar experiment had been successful in China:

<http://www.npr.org/templates/story/story.php?storyId=4990242>

Incidentally, the BMJ (Dr. Google) paper by Tang and Ng (2006) has been widely discussed:

<http://www.bmj.com/cgi/content/full/333/7581/1270-c>

<http://www.bmj.com/cgi/content/full/333/7581/1270-a>

<http://www.bmj.com/cgi/content/full/333/7581/1270>

Here is the link to another article on including medical informatics in medical education.  
<http://openmed.nic.in/203/>

**Ashwini:**

Dear Feroz,

after reading the article u sent, it was new way of using technology for diagnosis. but personally i feel this technology is like the two edges of a sword. it might be useful as said in the article. but what about human thinking, dont u think that the doctors might become totally dependent and lose their way of analytical thinking if overused ( it might affect a set of doctors) . this would be a negative setback. this type of using technology should be for a rare disease or for narrowing a differential diagnosis in a difficult case.

**Supten:**

Dear Ashwini and Others,

In my previous mail I had sent the links to some of the critiques to the paper in question. An essential component in any "automated diagnosis" is to keep the "man in the loop", that means instead of AI (Artificial Intelligence), there should be IA (Intelligence Amplification). Enrico Coiera had compared "Informatics tools" to the "stethoscope" in cardiology. It cannot "replace" the doctor but can very much "empower" the doctor to

treat the patient better.

The formal term "Clinical Decision Support Systems" actually reinforces the fact that it is only a "Decision SUPPORT" system and not a replacement!

Here are a few relevant links for anyone interested to go deeper:

<http://www.openclinical.org/dss.html>

<http://www.coiera.com/aimd.htm>

<http://www.ahrq.gov/clinic/ptsafety/chap53.htm>

**Saira:**

Dear Supten, Feroze and friends,

As we deliberate on online learning styles and comfort levels, a few issues apart from time and connectivity have come up.

One is on silent reading/ learning, a style some feel comfortable with. No issues there, except that it does not contribute/ enhance group learning. The second is on the concerns on posting (or the lack of it) in response to a specific topic. This definitely is a more serious issue, since the learner in this case perhaps wants to respond but is hesitant on grounds of exposing his/ her ignorance or fears repetition. In this dilemma, s/he leaves the peers clueless who perceive it as indifference and end up feeling disappointed at the lack of interaction.

It is in this context that I would like to bring to attention a link sent by Supten on "assessing"and "e-learning", (June, 17th)

[http://www.wikieducator.org/Evaluation\\_of\\_eLearning\\_for\\_Best\\_Practice/Assessment/Assessment\\_criteria](http://www.wikieducator.org/Evaluation_of_eLearning_for_Best_Practice/Assessment/Assessment_criteria)

Though this built for a specific course I found the grading, for instance a way forward as it can serve as a template/ checklist to help us improve from Grade C in which most of us are now to Grade A by the end of the year.

[For an A grade you will be expected to:

communicate your ideas and learning to the class;

provide feedback to others in the class;

produce work of an excellent standard with original thought;

support methods used and statements with a number of current references from academic research and literature;

demonstrate reflection, problem-solving and critical thinking.

For a B grade you will be expected to:

communicate your ideas and learning to the class;

produce work of a high standard with original thought;

support methods used and statements with several references from academic research and literature;

demonstrate an indepth understanding of the subject.

For a C grade you will be expected to:

present plan to the class;

produce work of an average standard;

support methods used and statements with some references from academic research and literature;

demonstrate an average understanding of the subject]

To add to the diversity of the topic, what connotes health technology made for some interesting reading

[Post on June 18th <http://www.nlm.nih.gov/nichsr/hta101/ta10104.html#Heading10>]

The article on the effectiveness of e-learning (Choules.eL-med-edu.pdf) could not have been more well timed. Blended learning, e-learning ideas and e-learning resources are among the many useful things lucidly written.

### **Supten:**

Dear Mangala, Saira and Others,

Mangala, for further tips on Google, one may visit:

<http://www.googleguide.com/>

Saira, In the document:

[http://www.usdla.org/html/resources/2.\\_USDLA\\_Instructional\\_Media\\_Selection\\_Guide.pdf](http://www.usdla.org/html/resources/2._USDLA_Instructional_Media_Selection_Guide.pdf)

Chapter 6 (p. 32-34), it is said that: "there is some discussion as to where technology insertion in the classroom ends and blended learning (combination of multiple approaches to learning) begins. Suffice it to say that blended learning can include any combination of media that supports instruction, regardless of the mix of synchronous or asynchronous media...The economy of scale and power of blended learning is derived from its "elasticity": the ability to integrate a variety of synchronous and asynchronous media allowing the instructional designer to attain the most appropriate

blended learning solution.

Whereas the delivery technology does not alter the content, certain instructional media can affect the design of instruction, and as long as the "most appropriate" media are selected, learning outcomes will not be affected.

When developing a blended learning solution, maintaining instructional quality is paramount. To that end, learning objectives should never be sacrificed to achieve a blended learning solution. Also, when integrating instructional strategies (which are the products of learning objectives and serve to ensure the learning objectives are attained), some strategies may be more appropriate than others to achieve optimal learning."

**Feroze:**

Supten,

Another great article on 'blended learning', and the medical curriculum link was interesting, especially the special slot for 'medical skill' mentioned in it and of course the stress on assessment techniques like OSCEs. The article on medical informatics hits the nail right on the head when it mentions "Medical informatics is not just a subject to be learnt and forgotten after the first professional MBBS examination. The final aim of every student should not only be to become a good user but also an expert for advancing medical knowledge base through medical informatics".

The wikieducator link rekindled by Saira, reminds us about the need to continue active participation in the ML web. I agree the same ABC grades can be extrapolated to our ML webs.

Ashwini,

You and Supten are absolutely right..the idea of any technology ..google including should be to empower the clinician. A good clinician can only make good use of google. If you look the first example in Supten's article, you need the clinical sense to understand that you're basically dealing with geriatric depression before you search for the same. Of course there are a number of other uses, for example, whenever I'm not sure about a drug interaction, I can clear any doubt within seconds, same with drug side effects.

**Subodh:**

Dear Feroze, Supten, Saira, Mangala and friends,

Thanks, Feroze for initiating a great discussion this month. I specially thank Supten, Saira, Mangala and other friends who are trying their best to create an excellent learning environment on the listserv.

I am writing this to specially thank Feroze, Supten and Saira for the great resources which they have sent. Keep it up. I am enjoying these mails. I am sure, there are other

silent fellows who are also enjoying environment for blended learning created by you all.

**21-6-2008**

**Saira:**

Dear Supten, Feroze and friends,

Supten, thanks, once again, for helping us learn to search simpler, systematic and meaningful through this wonderful Google guide/link. Google search cannot get easier than this. Please try the 'teens click here' as well, after the novice and expert clicks, you won't believe how much enlightened you can get!

The explanation on blended learning prompted me to query on existing models and strategies. Please follow these links if any of you felt the same way...

[http://www.grayharriman.com/blended\\_learning.htm](http://www.grayharriman.com/blended_learning.htm)  
<http://www.learningcircuits.org/2002/aug2002/valiathan.html>  
<http://www.learningcircuits.org/2003/jul2003/rossett.htm>

As a teacher who is apprehensive and concerned on how students will respond and how to motivate them, these exemplars based on experiences of others who investigated makes for interesting reading/ learning..

<http://www.schools.nsw.edu.au/learning/yrk12focusareas/learntech/blended/index.php>  
Enjoy the experience!

**Feroze:**

We're three-fourth of the way on the June discussion. The third week's discussion started with something on 'adaptive eLearning' and went to other innovations with regards to assessment/evaluation of eLearning. New terms/concepts like Health Information Technology, ePortfolios and Blended learning were touched. There were some interesting discussion on the ML web discussions itself (Some of which I haven't attached in the week's transcript, because they weren't very relevant to the specific topic of the week). Towards the end the discussion moved toward optimal use of 'google', concepts like intelligence amplification, and clinical decision support tools and of course some wonderful time management tips by Supten. Saira also earlier had send in a very useful and comprehensive collection of e-vocabulary (Some of which would be greek to the geek too!!)

So from tomorrow, we'll be moving to the last segment of the month (22-28 June) and the sub topic will be "Technology in medical education -Application and Appropriateness"

## **Important points /new concepts discussed**

Adaptive e-learning

Soula's concept of adaptive e-learning

Blended learning

Evaluation of technology enhanced medical education/e-learning

E-portfolios

Clinical decision support systems /intelligence amplification

## **Fourth week (Application and Appropriateness )**

**22-06-2008**

**Feroze:**

Kicking off the final segment of the month - "Technology in medical education - Application and Appropriateness". Attaching an article from medical education online by Curran et al. The article is about a 'Mixed Learning technology for continuing medical education'. The authors stress on the point that the greatest use of such a system would be to promote self-directed learning. I suppose the a big part of the initial thrust with regard to medical education technology should be towards self-learning. Also any such innovation should be 'user-friendly' and should be introduced in a gradual but steady manner so that it doesn't overwhelm the users. Also attaching a detailed review on e-Portfolios – this is a general review but many sections specifically deal with the application of the same in medical education.(it's a large file > 3 MB).

**23-06-2008**

**Supten:**

I'd like to start the final week on "Application and Appropriateness" with some good news.

I'm attaching the "Minutes of the meeting of the Executive Committee held on Monday, the 12th May, 2008 at 11.00 A.M in the Medical Council of India Office, New Delhi". Here, in pages 35 and 36 (Item # 47), "Digital Approach to Medical Education (DAME)" is stressed upon. I'm mentioning 3 salient (and relevant to our discussion) points of their recommendations:

1. the teaching faculty is required to be oriented on the computer technology by the Medical Education Unit in each college which ought to be an integral part of the "faculty development programme".
2. Addition of a digital library to the existing libraries in medical colleges could be effected as a part of the minimum requirement to be fulfilled by a medical college/institution.
3. The Committee is of the opinion that this modality is welcomed specially in the context of sensitizing the end users of the CME programmes sponsored by MCI about significance, relevance of the "technology enabled learning" which is need of the day.

**Saira:**

Thanks for the nice words. It really is stimulating to think/learn in a vibrant environment. Some links may have been superfluous that even the geeks were intimidated and so we the lesser mortals can ignore! But I am extremely happy that as a group we are able to crystallize and steer the direction to meaningful learning.

Thank you Mangala and Amol for having steered the discussion on e-portfolio. By this you have spoken for a whole lot of those who would have liked the clarification in our group. That is the way to go. Since your queries were on different threads, please allow me to respond on this week's discussion thread , especially since Feroze has also attached an elaborate article in the same lines.

First, thanks Subodh for revisiting and very judiciously culling out/ sharing parts of the portfolio discussion of last year. The articles and the power point presentation you have attached can optimally clarify issues on how the portfolio can serve as a tool for teaching/learning/ reflection and assessment.

Here are some more links I was introduced to, through my Dept e-group which I found simple and lucid and one can even help us build a e-portfolio.

E-portfolio

<http://faculty.washington.edu/krumme/students/portfolio.html>

Starting a Student Portfolio Program

<http://www.nursing.umich.edu/facultyresources/ePort/askYourself.html>

Creating a portfolio

<http://catalyst.washington.edu/help/portfolio/index.html>

Also find attached some more articles you can read at leisure on the experience/ case studies on the varied uses of portfolio - David et al on assessment and Dornan et al on reflection.

**Ashwini:**

i just went through the article of mixed learning technologies. after going through the article , i personally feel every technology has its own advantages and advanetages. so depending on our goals, we need to combine different technologies or an innovative technology based module with the conventional method. as i am doing my project of exposing the student to surgeries through which they learn the living anatomy which is

different from the morbid anatomy. but who answers the doubts, so we combine the conventional method by presence of a surgeon and anatomist to explain and communicated to the doubt aroused in the students.

now by applying various technology, no doubt we are directed to self learning pattern. but i feel these methodologies require a lot self motivation who have a positive attitude to these new methods. and one more thing is the time constraints. where is the time to access the technologies because as i am going myself through the same system of web based learning along with the departmental work, other research activities and opersonal work, ( sometimes i feel 24 hrs in a day are not enough), to accurately benefit from this type of learning, i need 24 hr access, and even if tis present we need to spend minimum 2hrs on the net to go through this rich learning experience. if it is you whos has to moderate the session you need to be fully focussed on it to give justice as it is a reponsibility.

appropriateness and application of technology in medical education needs to still bear in the roots in India and now is a transitional stage where we are trying to keep the existing system and also trying to learn the new thing, experiment it and use it. it is a double job right.

### **Supten:**

In the document I had appended to my earlier email:

<http://www.mciindia.org/meetings/EC/2008/ECMN%2012-05-2008.pdf>

it has been stated in p.36:

"it needs to be noted that the Medical Council of India as an amendment to Graduate Medical Education Regulations, 1997 have proposed that the duration of medical education be increased from 4½ to 5 years. With reference to the six months which have been added, it has been further proposed that the same would be availed for orientation of the students admitted to Ist MBBS course in the beginning itself with reference to Computer Training, Ethics, Communicative & Behavioural Skills, History of Medicine, Communicative English etc. The purpose is to orient the admitted child into medical curriculum with reference to computer & information technology. Likewise, the teaching faculty is required to be oriented on the computer technology by the Medical Education Unit in each college which ought to be an integral part of the "faculty development programme".

### **Barani:**

There is a study done in Singapore regarding the “Portfolio as a Learning tool: Students Perspective”, available in this link :

<http://www.annals.edu.sg/pdf/34VolNo8200509/V34N8p511.pdf> Amol, I am sure that this article will be useful for you.

**Subodh:**

I visited the e-learning page suggested by Supten. Thanks to the discussion held last year and this year on technology, I knew most of the terms used on this page; e.g. wiki, blog, second life, web 2.0 etc and that how they relate to educational technology.

I came across one new term or program; WebEx. I do not remember any discussion on this program. You may visit the page [www.webex.com](http://www.webex.com) to get an idea about the program. And, I am sure, Supten will throw more lights on this new software.

**Supten:**

Thanks for your query on Webex.

A good introduction is: <http://en.wikipedia.org/wiki/Webex>

However, there are free software available that offer a lot of such features.

The leader is Moodle: <http://en.wikipedia.org/wiki/Moodle>

and another one is WiZiQ: <http://www.wiziq.com/>

**Saira:**

Subodh's links and resources on portfolios in general, Animesh's query on teachers portfolio and the discussion thread on e-portfolio has triggered the quest to find out what a teaching portfolio is. Interesting and challenging!

See how..

<http://ftad.osu.edu/portfolio/>

<http://ftad.osu.edu/portfolio/PortfolioLinks.html>

And for providing evidence of accomplishments, a teaching portfolio needs these items included (mindboggling!)

<http://ftad.osu.edu/portfolio/ItemsIncluded.html>

**Supten:**

From the links that you have sent, here are 3 redirects for sample "Teaching Portfolios".

<http://people.cohums.ohio-state.edu/mccorkle12/oldsite/portfolio.htm>

<http://krypton.mnsu.edu/~schumann/www/research/tportf2.html>

[http://www.mech.uwa.edu.au/NWS/NWS\\_Teaching.html](http://www.mech.uwa.edu.au/NWS/NWS_Teaching.html)

However, in our part of the world, "promotion" is not usually counted with quality -as in: [www.hrd.qut.edu.au/benefits/reward/promotion/docs/2008PromotionsEvaluationData.ppt](http://www.hrd.qut.edu.au/benefits/reward/promotion/docs/2008PromotionsEvaluationData.ppt) rather by "quantity" whereby the exact number of days a faculty member has spent in a particular grade in a medical college is manually counted!

**Subodh:**

When I first read the mail from Saira, I initially did not realise that she is talking about a portfolio to be maintained by the teachers (teaching portfolio). Only when I opened the links sent by Saira and Supten, I could get the meaning of a teaching portfolio.

I agree with Saira that this is a challenging task. But, it might be a good idea to get into the practice of maintaining a teaching portfolio before we introduce the system of portfolio for the students. We should have a first hand experience in it. For those of us who thought that they missed the opportunity to create a portfolio for themselves during their student life, should not get disheartened. You have an opportunity here.

Last time, I visited one of my old students who is doing residency in Medicine in Scotland. First time, I saw a portfolio which she has prepared for her residency program. I was also pleasantly surprised to find one of the documents with my signature on it in her portfolio. She had done a short project with me as her moderator. And, this project found a way to her portfolio. So, a portfolio may contain important documents and your experience from the past. If you decide to prepare a portfolio for yourself, you may add your own experience as a student and how it guides your teaching style. I think, it would be wonderful visiting your student life this way.

Hope, one of the links that Saira had sent for creating a portfolio would also help us create a teaching e-portfolio. We need to further evaluate it.

**Feroze:**

Supten,

The news regarding the MCI recommendation was encouraging. Any idea on the current position on using online journals in lieu of hard copies of the same in the context of MD course inspections?

The link to the moodles site was eye-opening. For those who haven't tried it you can take a login to take a demo as an administrator, teacher or student.

Ashwini,

You're absolutely right. Motivation and comfort with technology are big issues, but somehow I feel the medical students nowadays are far more comfortable with technology (which in a way makes them more motivated too) than we ever were. So maybe the bit of the pessimism from our side would diminish once we actually start getting involved and of course like Supten mentioned if it becomes kind of mandatory for the faculty to be computer savvy (with help from the MEUs) it would make a huge difference.

Saira, Barani's and Subodh's links to ePortfolios were very comprehensive. Any suggestions on how we can start off using ePortfolios practically in our institutes (in a small way)?

**24-6-2008**

**Mangala:**

Thank u for all the useful links on the teaching portfolio. Dr Subodh has written his experience on the matter.

I agree with Saira that this is not only a challenging task but also herculean task especially in Indian Scenario. But as the learning is not restricted to area, and taking an optimistic view of the technology, We should have a first hand experience in it. Thanks to the PSG-FAIMERINSTITUTE- LISTSERV.ECFMG.ORG a site and example of technology which has not only inspired but also has provided so much information which would not have been possible with individual effort.

**Saira:**

The links sent by Supten on the philosophy of Doublethinking was interesting and replete with radical thinking. A must read/reflect for all of us teachers directed to self and life long learning. Thanks for a great link. Trust you to have the last word (link)!

As we use the links to various (re)sources on attempting to develop one, caution on the purpose (personal development/ assessment and/or learning) for which it is developed needs to be borne in mind as Cole's and Rees' comments lead us to believe.

Preparing a portfolio, e or otherwise is not yet a practice in our country, or is it? Would like to be enlightened. Agree with you Subodh, the next step should be learning by doing!

As we carry the discussion forward on 'Applications and Appropriateness' of technology, I am intrigued by the use of wikis, their scope and application in every day teaching/learning. We know Subodh has already had a firsthand experience. In my department, we are attempting one for postgraduates learning from Subodh's experience. I would welcome the group's ideas/ experience/expertise on the optimal use of a wiki for

e-learning.

**Supten:**

The Fact remains that way back in 1997 the Executive Committee of MCI had recommended the "Digital Library" for medical colleges. However, when the honorable Inspectors come, they simply measure the physical parameters of the various rooms, count the heads of faculty members and count exactly how many days they have been in a particular grade (doesn't matter whether s/he has taught or researched anything or not!) and also count the books and journals (paper versions only) available in the Library. During our childhood days we had heard a joke. When a boy was scared by a barking dog, a man said "Why are you afraid? Don't you know that a barking dog never bites?" The boy replied: "I know that but does the dog know?" While the National Board of Examinations is formally conducting regular lecture classes for all disciplines through videoconferencing and are also uploading various study materials in their website, the MCI doesn't even treat DNB as equivalent to MD/MS! As an icing on the cake we have an honorable minister for health and family welfare who believes that if smoking scenes are removed from films the harms of tobacco will vanish from India.

Dear Saira and Others,

Your mail reminded me of another definition of "Echo": the only thing in the world that deprives a woman of the last word!

As far as Wikis in the Medical Field are concerned, I am posting three relevant links from where you can go exploring further.

[http://askdrwiki.com/mediawiki/index.php?title=Physician\\_Medical\\_Wiki](http://askdrwiki.com/mediawiki/index.php?title=Physician_Medical_Wiki)

<http://sciencerooll.com/2007/03/27/medical-wikis-the-future-of-medicine/>

<http://davidrothman.net/list-of-medical-wikis/>

**Shital:**

Discussion on the last segment of the "Technology in Medical Education" is venturing many topics that are due in the months to come. Nonetheless, it is very productive learning experience and it gave me lots of materials for the November discussion. I remember the last Faculty Development Meeting, where an Israeli professor told us to be prepared for "spiral" or "helical" contents in our work too rather than only in the curriculum being developed for PAHS. Thus, I would like to thank the resources from Supten, Feroz, Subodh, Saira and others for sending such a rich and valuable resource.

Since we are now focusing on the "Application and Appropriateness" of the Technology in Medical Education, I would like to share my personal views and experiences. My experience of teaching demography, biostatistics and epidemiology at Kathmandu University points out that the use of technology in medical education is applicable as well

as appropriate. The main limitation might be in the form of outdated curriculum which could be modified during our teachings.

I have encouraged my students to use and integrate the theoretical knowledge via technology; for instance, I asked my students to send their assignments by my institutional e-mails as the introductory lessons in medical informatics was the use of internet, e-mail etc. By this way, we were able to save the hard copies and exchanged many things via soft copies. Only the final report were asked to submit in the hard copy. Students in the clinical phase loved the e-mail discussion between me and them on the application of inferential statistics and epidemiology. They choose their own research topics in one urban and/or rural and finished it from scratch without major problems. Students effectively used the two software Epi-Info and SPSS to construct the questionnaire, enter and edit the data and, analyze the results.

Having said that, I am not advocating that we should use each and every development in technology in Medical Education but we should take the concept and try to discuss in a large group and localize it before going for the full application. As Supten has rightly pointed out the "Inspection Syndrome" of MCI, which is same here in Nepal by the "Nepal Medical Council", until and unless these people do not change then what we can do is change the practice within our university/school

### **Barani:**

Types of e-portfolios :Student, teaching and institutional e-portfolios are emphasized. Just visit this link: <http://net.educause.edu/ir/library/pdf/ELI3001.pdf>

### **Sundar:**

we are in the last lap on technology in med edu

Application of technology needs technology first ,people willing to change to new technologies from the traditional method,resources whether money,machine etc.It may look pessimistic but not so Technology saves time,resources especially human resource which is scarce.Application can be at individual level,department, institution, university or the national authorizing body the MCI???.people tend to use techy if they are knowledgible or if they undergo a short training.e.g. simulation was not acceptable when somebody talked about them there was an immediate reply India has enough patients why simulation? but when i could explain that there is no risk of worng doing to a patient ,it can be repeated any number of time,each trainee undergo a similar training programme which is easier to evaluate and when we had a workshop and people had a feel of the simulator they said "this is nice".

Appropriate use of technologies: This should not become another investigational modality to say the investor has to make money. The department or the institution should clearly express the use of the technology before we invest on the techy.e.g. buy a computer and no body is trained to how to use the computer and no body knows why there is a computer. The technology should be teacher as well learner compatible another example is simulators cannot be used for dissection if so appropriate simulator needs to be bought.

Appropriate use of technology is the key word because application is not a problem at all if you have enough resources

**Saira:**

Well, well, the listserv is now a platform for candid admissions! What next?

As always, wowed by the links. All we wanted to know about what it is, how to create one and some excellent existing medi wikis.

Repositories in the form of Archives and digital libraries, sure can serve as knowledge banks but are devoid of the discussion platform. Wiki as I understand is a community website which can be edited and added to by any member – ideal for problem solving, collaboration and knowledge management. The advantage it has over an e-group is that the latter is more a platform for posting information and educational resource sharing. Hence the quest for a wiki for postgraduate training.

If that is about the application, deliberating on appropriateness of this technology for post graduate training, is it fair to be apprehensive that in the absence of an will and active participation, perhaps the time and energy spent in the construction will be wasted? Comments/ suggestions/ideas anyone?

**Nirmala:**

Feroze and group had set an example for all of us. Most of the technologies discussed and the links posted are all e- based. I would like to know whether there are any other technological advancements in medical education. and I hope there are. As the sub topic for this week is feasibility, use of other methods and their usefulness also can brought out. Like Supten has rightly said on adaptive learning, many of us try to be passive readers, may be due to many reasons he has pointed out.

If we can discuss other methods or technologies also, few of us may be interested as those may be comfortable and more feasible for practicing. As far as my setting is concerned, I learnt many things from the discussion. But practising it???

**Supten:**

"Better late than never" - and it's indeed a pleasure to see some discussions going on here.

Subodh, you may have noted that in the response to your questions I haven't included this listserv experience within my e-learning exposure. That is because I wanted to include only "formal" course where responses to a listserv are not "optional".

Shital, using emails for feedback and revisions is also a good application of technology for medical education.

Saira, now I'd point you to some nice examples of Wiki. First you may visit:

[http://en.citizendium.org/wiki/Category:Approved\\_Articles](http://en.citizendium.org/wiki/Category:Approved_Articles)

and pick up any of these articles that you find interesting. Suppose you choose:

<http://en.citizendium.org/wiki/Life>

that may be followed by a visit to the History and Discussion pages:

<http://en.citizendium.org/wiki?title=Life&action=history>

<http://en.citizendium.org/wiki/Talk:Life>

Then, if you are still not tired, you may have a look at the profiles of some of the major contributors (how do they manage time for this?)

<http://en.citizendium.org/wiki/User:Anthony.Sebastian>

[http://en.citizendium.org/wiki/User:Gareth\\_Leng](http://en.citizendium.org/wiki/User:Gareth_Leng)

[http://en.citizendium.org/wiki/User:D.\\_Matt\\_Innis](http://en.citizendium.org/wiki/User:D._Matt_Innis)

[http://en.citizendium.org/wiki/User:David\\_Tribe](http://en.citizendium.org/wiki/User:David_Tribe)

[http://en.citizendium.org/wiki/User:Pierre-Alain\\_Gouanvic](http://en.citizendium.org/wiki/User:Pierre-Alain_Gouanvic)

Dear Nirmala and Others,

On June 04, 2008, I had written:

The question: "What is Technology?" leads us to numerous definitions. I'd personally vote for:

<http://science.education.nih.gov/supplements/nih4/technology/other/glossary.htm>

that states Technology to be: "A body of knowledge used to create tools, develop skills,

and extract or collect materials; the application of science (the combination of the scientific method and material) to meet an objective or solve a problem."

In our "Topic of the Month", the "Objective" is "Medical Education" that can be defined as: "education related to the practice of being a medical practitioner, either the initial training to become a doctor (i.e., medical school and internship) or additional training thereafter (e.g., residency and fellowship). [Wikipedia]" or "Specialist training in one or more branches of medicine, including instruction in biology, physics and chemistry. [<http://www.bioscience-bioethics.org/m.htm> ]"

Therefore, we would prefer to choose the "appropriate" technology, suiting our "needs" (essential) and "wants" (desirable) for "gaining" or "imparting" medical education. Each of us may require a different use of technology for our designated jobs and ambitions.

There are various "other technological advancements in medical education." Even the use of dust-free chalk is nothing but a technological marvel! Further, there has also been a thread of discussions on "educational technology" for medical education in this listserv and many of the things discussed (including the recent mails on non-e "portfolio") are not e-linked!

As far as practice is concerned, each of us will have to find ways to do it and that is a part of the "leadership training program", which the PSG-FAIMER Fellowship is about.

### **Feroze:**

'My cup runneth over'!(well at least my inbox runneth over).Its really wonderful to see the flurry of e-mails on the list-serve.

As Saira mentioned,the use of wiki's in medical education would be an exciting prospect.I know that this was discussed in detail in last years ML web, but it would be nice if Supten and Subodh can enlighten the 2008 batch a bit regarding the practical aspects of the same.

Supten,great links as usual ,especially the extensive wiki-links on [sciencerevolution.com](http://sciencerevolution.com).

Nirmala is right in saying that we could have discussed a bit more on the practical aspects of the application of technology (and not necessarily e-learning), but I suppose like Supten said, the practical use is something which we all have to learn with a bit of trial and error. Practically the use of technology in medical education must probably start with the stakeholders (mainly students and teachers ) getting sensitized to the potential and optimal use of technology.Shital's idea of students sending in assignments by e-mail was fantastic! Like the MCI recommendation Supten mentioned, the MEUs could probably initiate some kind of basic courses on medical informatics for the faculty, while the students can have the same incorporated into their curriculum.We should also probably stress on the best use of the existing resources rather than thinking of building up a lot of infrastructure without knowing what to do with it.

Another term I'd like to mention is m-learning (mobile learning), as defined by Wikipedia 'Although related to e-learning and distance education, it is distinct in its focus on learning across contexts and learning with mobile devices. One definition of mobile learning is: Learning that happens across locations, or that takes advantage of learning opportunities offered by portable technologies. In other words, mobile learning decreases limitation of learning location with the mobility of general portable devices'.(attaching an interesting pdf of a study on the use of an iPod as a learning tool in medical education. Most of the kids these days seem to be carrying one with them...and this may be one way that the administration can elicit some positive benefit from the 'untouchable' iPods!!)

**25-6-2008**

**Supten:**

Dear Feroze and Others,

Before talking about Wikis, let me give a couple of examples showing the "power" of this listserv.

Yesterday evening I had sent a few links on some of the active contributors of Citizendium.

Today you can see that at least 2 of the members of this listserv got inspired:

[http://en.citizendium.org/wiki/User:Subodh\\_Sharan\\_Gupta](http://en.citizendium.org/wiki/User:Subodh_Sharan_Gupta)

[http://en.citizendium.org/wiki/User:Saira\\_Banu%2C\\_M](http://en.citizendium.org/wiki/User:Saira_Banu%2C_M).

The original definition (by Ward Cunningham) of Wiki is found at:

<http://www.wiki.org/wiki.cgi?WhatIsWiki>

The most successful Wiki, Wikipedia describes: <http://en.wikipedia.org/wiki/Wiki>

The most important keyphrase for a successful Wiki is "collaborative community" and the "wisdom of the crowd" works outstandingly. An excellent treatise on "how to collaborate" is presented at: [http://en.citizendium.org/wiki/CZ:How\\_to\\_collaborate](http://en.citizendium.org/wiki/CZ:How_to_collaborate)

**Nirmala:**

Dear Feroze,

The pdf file you had sent on ipod is very good and it also has the information on preparation on interactive sessions through ipod, which is really appreciable

**Sylvester:**

I just went through the article on ipod learning that you had sent. I think it is a fantastic concept and I stress on the word concept. Any new method of teaching would attract a fair amount of scepticism until it is proven to be effective. So lets see,

## ADVANTAGES

1. Different forms of Intelligence: Earlier we used to believe that there was only one form of intelligence that was universal and could be tested. What we commonly term as Intelligence Quotient (IQ). Recent concepts have focussed on Multiple Intelligences. And these are: (<http://www.wikipedia.org>)

Bodily-Kinesthetic

Interpersonal

Verbal-Linguistic

Logical-Mathematical

Naturalistic

Intrapersonal

Spatial

Musical

So as the articles mentions, if we combine two modalities of teaching, most commonly used is visual and auditory, in the form of listening to music while working on the iPOD it might tap into different areas of Intelligence and improve learning.

The only disadvantages that I can think of is the factor of cost effectiveness. If you see any advertisement for B-schools you notice the offer of free laptops during the course. Wonder if these other electronic gadgets will also follow the same path.

I agree with Nirmala's point of the practical aspects of Medical Technology. Suptens information is always eye - opening in this area.

**Ashwini:**

dear sylvester,  
that was a good interpretation and i became aware of the new varieties of intelligence, implies the role of psychiatry in interpretation of the application and pros and cons of using technology.

**Chitra:**

To start with the ML Web Learning, all will agree that we have had an information overload. Knowledge is expanding tremendously and all of us have no choice but to put our effort to stay on track otherwise we find ourselves incompetent, loose self confidence and obsolete. What I learnt in Medical school three decades ago and the practice of medicine of today is so much different.

While talking to some students, I learnt that some of the UG"S of today are not still computer savvy and I felt proud that inspite of not belonging to this Gen X, I have still managed to stay afloat in this technological world. So MCI or not, I think the entering medical students need to have some basic computer classes also.

Your attachment on ipod was something very new for me and I think it would serve extremely well for students who miss classes and need to catch up or even for recapitulating lessons and they can use it while traveling (especially in Bangalore where a lot of time is spent at traffic signals!) which helps in effective time management.

Sylvester's take on different types of intelligence also throws an insight on how a multipronged approach is required for getting the best of teaching.

**Supten:**

Dear Sylvester, Ashwini, Chitra and Others,  
The discussion seems to have taken an interesting turn.  
I am attaching a relevant Powerpoint show:  
[net.educause.edu/ir/library/powerpoint/EDU02133.pps](http://net.educause.edu/ir/library/powerpoint/EDU02133.pps)  
on the Cognitive Psychology Principles for Educational Technology.  
Also, here is a link to the Encyclopedia of Educational Technology:  
<http://coe.sdsu.edu/eet/Admin/TOC/index.htm>

If you visit that page, you can further explore by clicking on the pages on e-learning like:  
<http://coe.sdsu.edu/eet/articles/elearning/index.htm>

**Nirmala:**

Dear Chitra and others,

I agree with your suggestion for basic training in computers for our UG students. In nursing curriculum, we have a subject on information technology, where our students learn the basics.

To add on to Feroze's ipod teaching, here is a link on virtual reality training which will help in preparing readymade ipod classes for our students.  
<http://www.sciencedaily.com/releases/2000/03/000306075800.htm>

**Supten:**

Dear Shital, Nirmala, Saira and Others,

It is indeed very nice to see that many Fellows are gaining in confidence and sharing their "knowledge".

In this context I am attaching a relevant article.

Also, Skyrme (2002): [http://www.skyrme.com/updates/u64\\_f1.htm](http://www.skyrme.com/updates/u64_f1.htm)

talks about "The 3Cs of Knowledge Sharing: Culture, Co-opetition and Commitment" and the barriers and challenges.

Shital has been generous enough to share his personal experience and enrich all of us. Thank you Shital for sharing your recent presentation.

**Feroze:**

Podcasting I suppose is really going to be a big thing in medical education in the near future, for both teachers and student. Like Saira mentioned there are a number of sites with interesting podcasts available and apparently some medical institutes have already started using it in a big way -  
[http://focus.hms.harvard.edu/2006/012706/med\\_ed.shtml](http://focus.hms.harvard.edu/2006/012706/med_ed.shtml). Another interesting site I found is <http://www.cmepodcasting.com/>, which has a comprehensive collection especially on psychiatry topics (Sylvester you may find it very useful)

While searching for articles on the practical applications of technology in medical education, I came across this article (attached as PDF). It beautifully (And passionately!) sums up practical applications of medical informatics in medical teaching. It also touches on aspects like Artificial Neural Networks, something I've heard a lot about in the context

of medical informatics, but have not really understood clearly .I'm sure Supten will be able to explain ANN to us, especially as he knows the author of the article quite well.

Shital, kudos to you again for showing how to apply technology in teaching in a simple yet effective manner.

**Saira:**

Shital, impressive is a small word to describe your stupendous effort and the comprehensive presentation that describes it. For all the skeptics among us you have shown a direct, practical, simple, innovative, personal evidence on how to optimise technology and make it work for us. I second your views on the need for careful streamlining to make it a worthwhile teaching/learning experience. Thanks for sharing it and as a community medicine person I look forward to learning more from you. No wonder Supten has been prompted to share 'c's of interesting reading material on Knowledge sharing. Keep up the good work.

**26-6-2008**

**Subodh:**

Shital, I second the view of Saira. You and your institute are doing an excellent work. Keep it up. Being from the same stream, we will get more opportunity to learn from each other and adopt these in our teaching, service and research programs.

At Sewagram also, we train our students in research methodology and get small projects done by them where they collect the information, do computer entry and analysis of the data in EPI INFO. This is presented by the students themselves on the last day of the camp when the Dean and other authorities of the institute are also present. This is done in a setting of ROME (Reorientation of Medical Education) Camp, which is of 15 days duration at one of the rural centers in our institute. This ROME camp is being conducted in our institute for last more than 20 years and when I was the In-charge of the camp, I had introduced the data entry in EPI INFO approx 8 years back. Dr. Amol's FAIMER project is based on this camp. However, for us it had not been possible to rope in the DHO and other authorities in the camp and get commitment from them for using the data. I do remember the CEO and DHO being the Chief Guests in the valedictory session when the survey findings is presented by the students one year. Although, they spoke very emotionally and inspired the students, they did not use the data for planning purposes. I think, we need to make more efforts to get the data utilized in the health system also.

Shital, I found a mention in your mail regarding residential posting for the students being practiced at your institute. I would like to know more about this program. I think, it

might be a good idea that we do not use the listserv for this purpose and you may send the mails on my personal id subodh.faimer@gmail.com . Please copy these mails to Dr. Amol (dramol\_d@yahoo.com) and I think even Saira (saira.psgfaimer@gmail.com) will like to have this kind of information.

The term mobile learning and podcasts have generated lots of discussion on the group. I also tried a few links and then got stuck up on the term 'podcatcher' to later realize that I already know and I have used a podcatcher program, e.g. iTunes.

In this context, I would also like to mention that RSS reader is another important development which will help get appropriate messages from a webpage where RSS feeds have been uploaded.

From wikipedia, "RSS is a family of Web feed formats used to publish frequently updated content such as blog entries, news headlines, and podcasts in a standardized format.[2] An RSS document (which is called a "feed", "web feed"[3], or "channel") contains either a summary of content from an associated web site or the full text. RSS makes it possible for people to keep up with web sites in an automated manner that can be piped into special programs or filtered displays.[3] The benefit of RSS is the aggregation of content from multiple Web sources in one place. RSS content can be read using software called an "RSS reader", "feed reader" or an "aggregator", which can be web-based or desktop-based."

For more information on RSS feed, visit  
[http://en.wikipedia.org/wiki/RSS\\_%28file\\_format%29](http://en.wikipedia.org/wiki/RSS_%28file_format%29)

If you have used programs like iGoogle or Google Reader, these programs use RSS feed.

Refer to Supten for more light on the topic. Supten, I am sorry if you already have written about RSS feed on this listserv.

Supten, is there a simple way to add an RSS feed on webpages that we create? Does googlepages allow this? I think, most of the free wiki servers do not allow creating RSS feed. Please tell me if I am correct.

**Padma:**

I really congratulate Feroze for giving most useful information and guidance throughout the session. In spite of our busy work, really motivated us to find time to go through articles and links sent by all our friends. It was informative, but still we need morre time to read all articles thoroughly.

In my University UG's are trained to do small projects from second year(MBBS) onwards, either individual or group SSM ( Small Study Module) one in each year, hospital based /community based study. So students go to villages during Preventive medicine postings and submit projects at the end of the postings in third year. They also develop interest in statistics because of their need to do projects, sometimes we the facilitator who guide them, also help them to publish papers in journals etc.Students here get maximum benefit out of technology available and also internet facility all the time inside the campus.I gained more knowledge in this interactive session. very very useful

### **Supten:**

On June 13, I had mentioned in this listserv about RSS feeds from PubMed:

[http://www.nlm.nih.gov/pubs/techbull/mj05/mj05\\_rss.html](http://www.nlm.nih.gov/pubs/techbull/mj05/mj05_rss.html)

To know more about RSS feeds, see:

<http://personalweb.about.com/b/s.htm>

<http://rss.softwaregarden.com/aboutrss.html>

And, for creating RSS feed for any webpage free of cost, visit: <http://feedity.com/>

Feroze, if anyone is interested in artificial neural networks, especially those applied to clinical decision support, one may visit the page:

[http://en.citizendium.org/wiki/Clinical\\_decision\\_support\\_system](http://en.citizendium.org/wiki/Clinical_decision_support_system)

Here is a slideshow on RSS by my friend Mr. Sukhdev Singh of NIC - who is also the Executive Editor of the Indian Journal of Medical Informatics:

<http://ijmi.org/index.php/ijmi/about/editorialTeam>

<http://www.slideshare.net/sukhi/surviving-the-web-explosion-keeping-in-touch-with-rss>

My profile at Citizendium: [http://en.citizendium.org/wiki/User:Supten\\_Sarbadhikari](http://en.citizendium.org/wiki/User:Supten_Sarbadhikari)

### **Shital:**

It will be my pleasure sharing our programs with you all. In one month of ML Web experience I have learnt a lot and I am sure that it continues like this in the months to come. I agree with Subodh that the DHOs usually only come and give passionate speeches and avoid the results from our projects. They think that students project are not in par with the actual research project. But we involved them from the beginning and made them own our program and especially the community postings. Consequently, they proudly integrated the hard earned effort of ours and our students into the local planning and policy formation. These experiences I shared with with was from the

Kathmandu University Medical School (KUMS) <http://www.ku.edu.np/kusms/> where I used to work (2004 - 2007). I opted to join the Department of Community Health Sciences of the Patan Academy of Health Sciences (PAHS) <http://www.pahs.edu.np/about/mission/> because I found their proposal is even more comprehensive and effective not only in the local level but also in the regional and national level. I will share our proposed model once it is approved by our academic council via listserv and/or personal e-mails when appropriate. I request/urge you all to work to appropriately apply the technology in our own disciplines where colleagues like Supten can give their valuable technical inputs

**Sundar:**

Since we are in the last lap pertaining to application and appropriateness of tech in med edu. I just went through an article on simulation why?how? I am attaching the same for everybody's knowledge. Sorry I am not good in other technologies. Anyway iPod was great thanks to Feroze.

**Shital:**

Dear Sundar,

Thanks a lot for uploading the very interesting article on the use of simulation on Skills Training and Competitive Assessment. Though simulation devices mentioned in this article will be very costly, we can not bluntly reject the idea of using them in our teaching-learning methods

**Supten:**

I am quoting from 1994:  
Hiltz (1994) as cited in Wiesenberg (1999) states,

"The most frequently cited distinctions between the traditional face-to-face and new virtual classroom are structural; speaking and listening in the traditional classroom versus typing and reading in the virtual classroom; everyone moving at the same speed versus self-paced; a set time and place versus anytime and anyplace; social interaction as inappropriate versus social interaction as appropriate at the discretion of the participants; recording responsibility being the students' versus the system's; and utilization of advanced technologies in learning a luxury versus a necessity."

Therefore, "Learning online requires reading comprehension skills sufficient to master the material presented. There is a need for ongoing research to evaluate the online reading skills of typical adult learners as compared to the readability of E-learning courses. The implication of the research will influence instructional design techniques, particular the level of language / vocabulary used, use of graphics, page layout, interactions, and other methodologies to engage the learner in a deeper level of engagement with the content. Designing E-learning with an appropriate reading level will enable "Johnny" to read and comprehend the material which will foster "Johnny's" learning. Researchers, E-learning designers and instructors must stay focused on the goal of E-learning, "Learning" (Finnegan, 2005)."

For all those who may be interested in some case studies on developing e-learning programs, please go through the attached article.  
Others simply ignore this mail.

**Feroze:**

The topic of RSS feeds was timely and useful. RSS feeds can now be added to all google related spheres - including google pages, reader and blogger (I've tried it only on blogger personally though) - [www.wikihow.com/Add-RSS-Feeds-to-Your-Google-Personalized-Homepage](http://www.wikihow.com/Add-RSS-Feeds-to-Your-Google-Personalized-Homepage)

Sundar, nice article on simulation and I agree with Shital that too much should not be read into the initial costs. However I wonder whether there are any good studies in the Indian/Asian setting on the evaluation of simulation in medical skills training? and don't the teachers need to get trained in the best use of the simulators initially? Supten had mentioned briefly regarding his experience with simulators in previous years discussion on IT. Anybody else having first hand experience with the use of simulators?  
Supten, another wonderful attachment on e-learning programs/designing e-learning modules. Maybe in the future we can have modules with escalating difficulty levels (in the same specific topic ) to cater to students with variable adaptivity to e-learning. So that any "Johnny" can start with a simpler module on a subject and then gradually progress to the higher levels , depending on his aptitude.

**27-6-2008**

**Subodh:**

Dear Supten, Firoze and friends,

Thanks for enlightening all of us on RSS feed. The links sent by both of you are very helpful. I know, within a few days, I will be in a position to add RSS feed to googlepages and may be to my wikispaces.

The document on e-learning program sent by Supten is a great resource. However, I need sometime to go through this document. It really would prove to be a wonderful resource for one who is thinking of initiating an e-learning platform at the institute level. I will inform the group if I am able to use these examples to include in my institution at some level.

**Supten:**

Dear Feroze, Sundar and Others,

The only article from India on validation of surgical skills simulations that I am aware of is:

<http://www.indianjsurg.com/article.asp?issn=0972-2068;year=2003;volume=65;issue=6;spage=483;epage=487;aualast=Shindholimath;type=0>

For having a look at the various types of simulators available in India, one may visit:

<http://www.mripl.com/products.htm>

However, as Shital has pointed out, the costs may be taken care of in various ways. One of the options that was discussed during the MCI-sponsored meeting on medical informatics and telemedicine at AIMS, Kochi in March 2008 was that there may be Regional Resource Centers and gradually all the Institutes can build upon that according to their capabilities and interest.

Here is an article by Dr. Ramesh who has been training laparoscopy virtually in Bengalooru:

<http://www.lapsurgery.net/article1.asp>

**Sundar:**

Simulation in medical education are happening in India

AFMC Pune has a full simulator, Manipal has a clinical skill lab which includes task trainers, SP etc we in PSG IMSR do plan to go for a clinical skill lab. I visited a simulation centre in Israel called Medical Simulation Research centre (MSR) in Tel Aviv, Avinash has visited a simulation centre in Singapore at NHG hospital, more important every emergency conferences in India has Simulation work shop. kindly visit the following websites: [www.indusem.com](http://www.indusem.com), [www.msr.org.il](http://www.msr.org.il) for further learning on simulation

**Saira:**

RSS feeds, what they are and those available from Pubmed and a 'learn by doing' at 'wikihow' are the interesting things that came up for discussion thanks to Subodh, Supten and Feroze.

Sundar's mail on 'Simulation Technology' and the paucity in existing users in clinical settings, both medical and surgical in India as Supten has shown, demonstrates the need for more research and judicious planning. Shital's viewpoint to look at the half-full cup rather than the half-empty is based on the future simulators' role in the future.

Talking of clinical skills lab, a systematic review in that direction (attachment Lynagh et al) stresses on the need for rigour in research and for trials to evaluate transferability of skills to clinical performance.

As the June session on Technology (Information) is drawing close, enclosing a paper by von Lubitz et al on the other applications and rapid strides with which technology is advancing in medical education.

Tim Berners-Lee, director of the World Wide Web Consortium and inventor of the Web writes "Progress in communications technology has been characterized by a movement from lower to higher levels of abstraction - It's not the wires – it's the computers, (with the advent of the internet), It's not the computers – it's the documents, It's not the documents – it's the things (The power of the Web hadn't reached its full potential until the semantic Web came along), but the last level of abstraction is in the Web of real things!. Medical education and medical educators can do well with exploiting the best that technology has to offer.

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**Supten:**

Dear Saira and Others,  
Thanks for the 2 articles.

The paper by von Lubitz et al is a bit dated (in computer jargon, ten years' old systems are called "ancient"). Some of the concerns raised have been overcome. Nevertheless, the central theme that we need to adopt technology with caution and try to make full use of it is still valid.

The article by Lynagh, et al, on the other hand, addresses a more fundamental issue of "validating" any (new) training methods like "simulators". The fact remains that testing on simulators is far superior to testing psychomotor skills verbally. That is the reason why the paper also acknowledges the fact that "The use of simulators in medical education has forged ahead of objective proof of their efficacy, and their use in skills certification has already begun." Unfortunately, a flight simulator can mimic the real cockpit perfectly since it is usually built by the designers of the original one, which can never be the case with any biological simulator! God's creation and all the anomalies are yet to be known well enough to be simulated perfectly.

Since Saira has surreptitiously alluded to the "Semantic Web" or "Web 3.0", I'm signing off with a link to it: [http://en.wikipedia.org/wiki/Web\\_3.0](http://en.wikipedia.org/wiki/Web_3.0)

**Feroze:**

Since the talk has diverted to web 3.0, another word that crops up in the context of e-learning is 'internet2'

Internet2 orUCAID (University Corporation for Advanced Internet Development) is a non-profit consortium which develops and deploys advanced network applications and technologies, for education and high-speed data transfer purposes. It is led by over 200 universities (wikipedia).Apparent internet2 is likely to play a big role in medical e-learning -<http://www.newswise.com/articles/view/523880/>

Related to the above I saw a great PDF about digital tech and simulation in anatomy teaching.(the pdf is 8 MB),so just sending the link  
[www.cudi.edu.mx/otono\\_2005/presentaciones/stanfords\\_PARVATI.pdf](http://www.cudi.edu.mx/otono_2005/presentaciones/stanfords_PARVATI.pdf) The anatomists among us might find it especially useful.I really didn't know that simulators were being used as widely as it apparently is.I think Sundar you may be in a position to undertake an evaluation of the effectiveness of the same in emergency medicine teaching, when you get hold of a system (which I'm sure you will sooner than later).In the same context ,new generation video games are apparently being increasing used in medical education

[http://asunews.asu.edu/20080222\\_wiistudy](http://asunews.asu.edu/20080222_wiistudy)

**28-6-2008**

**Supten:**

Dear Feroze,

Thanks for enlightening us on Internet2.

Incidentally, the role of collaborative Wikis for "formal education" has already been established through Eduzendium:

<http://en.citizendium.org/wiki/CZ:Eduzendium>

Another related new Project at Citizendium, is WatchKnow:

<http://www.watchknow.org/>

## **Important points /new concepts discussed**

E-portfolios

Wikis in medical education

Podcasting

RSS feed

Simulators

Web 3.0 /internet2

E-learning design