

## **Report on Panel Discussion**

### **Detailed report of the session**

The last session of the symposium, 'Chemistry in Biology: The future of Life Sciences' was devoted to panel discussion on Teaching Science. Professor Amitabha Mukherjee, from Department of Physics and astrophysics Delhi University, chaired the session. The other panelist were Professor Murlidhar, Department of Zoology Delhi University, Dr. Sreedhar, Director CEMCA, Professor Vasudha Kamat, Joint Director CIET and Dr. Savithri Singh, Principal Acharya Narendra Dev College.

The session started with ten presentations by the panelists. Professor Kamat spoke about the Constructivists pedagogy and scope of ICT in teaching and learning process. She highlighted various web based resources that can be used in the teaching-learning process like virtual labs, web quest, learning objective repositories, ebooks, etc. She felt that CD based text is a source of static knowledge while web based resources are interactive in nature. She also emphasized that the multimedia learning materials should be developed by the teachers themselves as they know best what the students should learn and how they learn.

The second presentation was made by Dr. Sreedhar who talked about the role of communication in science. According to him, many important discoveries remain limited to the Scientific Journals as the scientists are not able to communicate the applicability of these discoveries to the masses. He also felt that the research should be need based. He commented upon the diversity in the student profile and the facilities available to them in different parts of India. To cater to the students from different backgrounds he said that the study materials should be made available to the students in various formats like text, audio, video, through radio and other media so that they do not suffer due to the lack of available infrastructure.

Professor Murlidhar raised certain questions regarding the teaching-learning scenario in India. He said that the students are driven by time tables while they should be learning driven. The questions posed by him were

How much can I learn? Is it physically possible to learn all?

In India attempts are being made to homogenize the syllabus. Considering the different conditions in different parts of India, is homogenizing the syllabus a good idea? Problems arise from syllabi revision because new additions are made to the syllabi without taking into account the structure of the course and the target audience.

Dr. Savithri Singh commented on the lack of student teacher interaction. She also felt that the students have very few questions to ask in the class. So there is a problem somewhere. She felt that this is because the learning now a days is information based and not concept based. The application of information is missing in present day learning process. She also questioned the need for uniformity in the teaching procedures.

Professor Mukherjee talked about general apathy towards science stating that the reasons were social as well as economical. According to him the students find science boring as it is being taught as a collection of information. Little importance is given to process of science like observations, tabulations, etc. Even the experiments are reduced to routine work as the personal experiences are not taken into account during teaching and learning of science. The solution suggested by Professor Mukherjee was to de-emphasize on the learning of facts and emphasize on performing the experiments on what is not known. He also suggested that the time has come to think about the role of the students as autonomous learners.

The discussion was then opened to the audience which gave the following comments:

- ❖ Time is lacking because of the syllabus, the mark based evaluation should be scrapped. The entire class should not be expected to continue in science. There are always some exceptional students who will pursue higher studies in science. Economics plays an important role in the popularity of a subject. Science scholarships are not high enough to attract more students. (Dr. Tanima Bose, Miranda House)
- ❖ Students are driven by marks, they will not take up projects if they are made non evaluated. (Dr. Urmi Bajpei, ANDC)
- ❖ Project work has become mostly farce. ( Dr. Sreedhar and others agreed.)
- ❖ Fear of teachers prevents the students from asking questions and working on the instrument. (Student, many others agreed.)
- ❖ Many experiments are introduced that are not possible in the college labs so they should not be in the syllabus. (Student)
- ❖ Virtual labs can overcome some of these problems. (Dr. Sreedhar)
- ❖ Teachers take pains to teach new courses. ( Research scholar)
- ❖ Teachers' integrity is not under question. (Dr. Mukherjee)
- ❖ Maintaining internal assessment record and other work eats into teaching time. (Ms. Smriti Bhatia, Miranda House)
- ❖ New changes are always criticized. All the students may not be interested in a given topic. Teacher should teach the subject in such a way that the students find the relevance of the topic and can use the knowledge in their field of interest. (Dr. Manisha Jain, ANDC)
- ❖ ICT people do not want to replace teachers. ICT can help in overcoming paucity of time. Teachers' role changes with ICT. Mindset of the teachers should change and they should become

content creators so that the learners are free to experiment with the knowledge and learning process. (Professor Kamat)

- ❖ There is a link between curriculum and job. (Ms. Sunita Jetly)
- ❖ It is a myth there is no such link.(Professor Mukherjee)

### **Summary**

The topic of panel discussion, Teaching Science, was interpreted in different ways by the panelists. Professor Kamat emphasized on the importance of ICT, specially the web based resources in teaching and learning science and how the role of teachers will change. Dr. Sreedhar talked about the importance of communication and different media to teach popularize science in the masses. Professor Murlidhar talked about the problems with the syllabi and how it should be formulated. Dr. Savithri Singh pointed the fact that students have very few questions to ask and felt that the emphasis on information and lack of concept base learning may be one of the reasons. Professor Amitabha Mukherjee felt correct methodology is not followed in science teaching. The audience commented upon the syllabi, fear of teachers, economic factors as the possible reasons for the growing lack of interest in science.