

(2) Tier 2 – Saving the basic needs of the people: We have been placing instruments to record the natural parameters for prediction of tides, storm surges, etc. In recent times, ESSOs like NIOT, INCOIS, etc. have placed oceanographic buoys and meteorological instruments to capture the weather variabilities and for weather prediction. They also run numerical models for the prediction of ocean and atmosphere – NOWCAST and FORECAST. The primary knowledge dissemination mode is the organization website, it also provides these services through other modes like e-mail, mobile phones, television, radio and electronic display boards to the public in their particular areas of interest. This helps the people prepare for the event/calamity in a timely fashion and save their basic needs efficiently.

(3) Tier 3 – Protecting the way of life of the people: As a part of the present Government's plans and policies, we can now devise better methods to not let the potential disaster affect the average lifestyle of the people in the area.

In the Digital India programme. The following need to be implemented as part of the tier 3 scheme.

The creation of digital infrastructure: To a large extent this has already been in place at ESSOs-MOES like INCOIS, NIOT, ICMAM, etc. where the NOWCAST and FORECAST models have been developed and researched upon. These include the setting up of the atmospheric and weather models as well as running the various general ocean circulation models. There is in fact a high performance supercomputer operating these models at IITM, Pune.

Delivering services digitally: In order to meet this objective, we suggest that the digital modelling system developed by the ESSOs be further expanded and connected to the various universities designed under the NKN scheme. In this manner, all local universities which come under the NKN scheme in disaster-prone/designated areas should be connected electronically to the ESSO centres and have a section with expertise in earth system science models. There should be

personnel capable of routinely analyzing the electronic data from NOWCAST and FORECAST, transferred through the network. In the long run, these personnel should be capable of running the models, and generating and interpreting the output.

Digital literacy: The universities with the modelled data and expertise in earth science should be involved in teaching and disseminating basic information about the forecast to the local students. This would create public awareness about environmental health.

Thus an efficient implementation of these knowledge dissemination schemes would go a long way in reducing the difficulties faced by the people in the disaster-prone areas.

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Contemporary teaching and research

We contradict Chaudhuri's¹ comparison of contemporary teachers with those who taught 25 years ago. This is because the present-day academic environment is much more competitive and demanding, and in many ways different from what prevailed several years ago. What would seem correct in the past might not always be appropriate and possible in the prevailing times. Research for the award of Ph D degree requires the fulfilment of several criteria and formalities in the present times. Thus present-day students undergo continuous evaluation and are under continuous pressure. The current situations require an academician to be a good manager and teacher at the same time. Hence, we opine that 'teacher-managers' are the need of the hour.

On the contrary, we consider that the new-generation teachers are more up-to-date with new research ideas and ways to motivate students with innovative thoughts. This is because they themselves have been students of the contemporary times and hence are more aware of the problems of the present era. The

earlier generation of teachers who have been in the profession for around 25 years, tend to stick to conventional thoughts and are often reluctant to accept modern means of research and teaching. These senior academicians usually stick to old conventional methods which have been mostly adopted from the West and tend to continuously apply them. In fact, under many circumstances it has been found that they are completely against the inception of new methods of research and this in turn leads to the academic under-development of research scholars. The contemporary generation is thus obstructed from incorporating innovation and exercising creativity.

However, we agree with Chaudhuri¹ that the level of classroom education has been much compromised in the present times, and would like to point out that this is the combined impact of the continuous evaluation system and administrative responsibilities of faculty. Due to the former, frequent exams are held and students mostly emphasize on getting through rather than learning. In addition,

the administrative responsibilities and formalities that teachers are bound to fulfil mostly make them incapable of devoting adequate time for teaching and supervising research scholars. The consequence is that students end up taking more exams than classes, and thus research work is delayed and hampered. This problem is more evident in case of senior faculty who have been teaching for about 25 years, as these usually land up in higher administrative posts. In these cases, administrative and official responsibilities greatly overshadow research and teaching.

We also agree with Chaudhuri¹ that craving for API scores has affected the quality of scientific research. This has led to many unethical means and emergence of a number of publishing houses to which low-quality research is 'sold' for promotional pursuit. It is this quest for material benefit that has led to many college teachers and aspirants to opt for research. The main aim of such 'researchers' is to somehow complete the necessary criteria for the award of the

Ph D degree. They are thus desperate enough to finish their Ph D as soon as possible and by any means achieve an impressive API score.

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Response:

Dutta and Dutta have agreed with some of my views, but objects to my comparison of contemporary teachers with those who had taught earlier. In this context, the following points are worth noting. Do

fundamentals change with changing times? Have we discarded Newton because he is old and out-dated? No superstructure can be built on weak infrastructure. If the foundations are weak, no matter how much innovation is talked about, it will lead to caricature or outright failure. Yes, in the modern times, chalk and talk method of teaching has given way to smart classrooms, where wall or roof-mounted projectors are used to display books and journals. To what extent has this improved true transfer of knowledge and assimilation of information? Yes, information is available today at our fingertips, but to what extent is that information been digested and used to create new information? I stick to my point that earlier teachers used to teach fundamentals and the rest of information pick-up was left to the students. Today perhaps, information is being provided, but with weak fundamentals – that information is floating like ice on water. Conditions are not conducive for the ice to melt and mix with water that is basically a metaphor of knowledge here. With such a scenario, teaching is losing its flavour. Earlier, students used to wait the whole day for a teacher to come and

take a class. Today, students know that such and such books will be displayed in the class and therefore, there is no point in attending classes. Of course, the scenario varies from state to state, or from college to college. However, one must agree that a teacher in the true sense of the term – a person who can teach, educate, create a culture of scholarship in the minds of the students, convert a so-called unstirred mind to an inquisitive and well-stirred mind, infuse hope and confidence – is not being seen much these days. A teacher is an idea. If information was all that important, a library full of books and journals could act as a replacement for the teachers. That is not to be. We need teachers who can inspire. Information is time-bound; inspiration cuts the barrier of time and creates generations. I hope Dutta and Dutta will agree with me.

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