Techno-Pedagogic skills and their Implementation in Teacher Education Research: Gearing up for tomorrow's classroom

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ABSTRACT

There has been genuine demand for a comprehensive research on Techno-Pedagogic skills as would satisfy the needs for ever-increasing number of future teachers. In this research, it has been the humble effort of authors to highlight the importance of techno-pedagogic skills in student teacher education at teacher education institutions. The researches show that the proper use of technology can improve the teaching-learning processes and can achieve objectives of paramount importance. Researches also reveal that as a matter of fact, the in-service teachers do not feel comfortable while using ICT in education effectively since they do not have time for both formal training and self-directed exploration (Fabry & Higgs 1997)**.** The student teachers should be provided with a highly well designed training for techno-pedagogic skills in teacher training institutions. There should be a special training and evaluation system to provide and measure techno-pedagogic skills. Student teachers should be accordingly well-trained enough to work with different types of school environments. They should have ability to manage, modify and improve the instructional methods with the help of technology. They should have the knowledge to justify the use of technology for a particular topic or a lesson. In this way we can achieve major objectives like improving classroom transaction, reducing drop out ratio, full utilization of resources etc.

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NEED OF THE STUDY

The impact of "ICT in education has a mixed feed back world wide. The past researches have shown that "ICT in education" if not implemented by well trained teachers and if not planned well, it may result into technology literacy only and nothing else. In-service teachers face difficulties in answering following questions. When to use ICT? (It should be used as an instructional tool) Where to use ICT? (The use should be justifiable) What technology to be used? (The selection of technology should be appropriate) Whether to use technology or not? (It should not be used for the sake of using) Why to use Internet? (The benefits of using Internet) Where to use Internet? (There must be some proper goals like research work for using Internet). They also face difficulties in aligning ICT with pedagogy. They sometimes feel uncomfortable with technology. Sometimes enthusiastic teachers do not get adequate support from school management because school management does not know the benefits of the same. To overcome such a serious problem, it is very important to equip future teachers with concepts of using ICT in education.

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REVIEW OF STUDIES UNDERTAKEN

With a view to study complex problems faced by In-service teachers at school level and for suggesting the prerequisites for future teachers we took the support of the researches done in the past for implementing technology at school level.

Past Researches

Research#1

Research about the barriers to the effective use of Information and Communications

Technology (ICT) in teaching. It summarizes the key findings and suggests resources for further reading.

Findings

Lack of time — for both formal training and self-directed exploration (Fabry & Higgs 1997),and for preparing ICT resources for lessons (Preston et al. 2000)

Lack of self-confidence in using ICT (Pelgrum 2001)

Negative experiences with ICT in the past (Snoeyink & Ertmer 2001)

Fear of embarrassment in front of pupils and colleagues, loss of status and an Effective degrading of professional skills (Russell & Bradley 1997)

Classroom management difficulties when using ICT, especially where pupil-to-Computer ratios are poor (Drenoyianni & Selwood 1998; Cox et al. 1999)

Lack of the knowledge necessary to enable teachers to resolve technical problems when they occur (VanFossen 1999)

Lack of personal change management skills (Cox et al. 1999)

Perception that technology does not enhance learning (Yuen & Ma 2002; Preston et al. 2000)

Lack of motivation to change long-standing pedagogical practices (Snoeyink & Ertmer 2001)

Perception of computers as complicated and difficult to use (Cox et al. 1999).

Research # 2

Survey conducted by Imposes-Reid and released by Microsoft Canada Co. Eight hundred Canadian adults were interviewed and the data weighted in analysis—by region and gender.

Findings

Mississauga, ON, June 25th, 2002— More than 90 per cent of Canadians consider it important for students to have access to computers and the Internet in the classroom, but the majority also believe inadequate equipment and teacher training are barriers to effective integration.

Research # 3

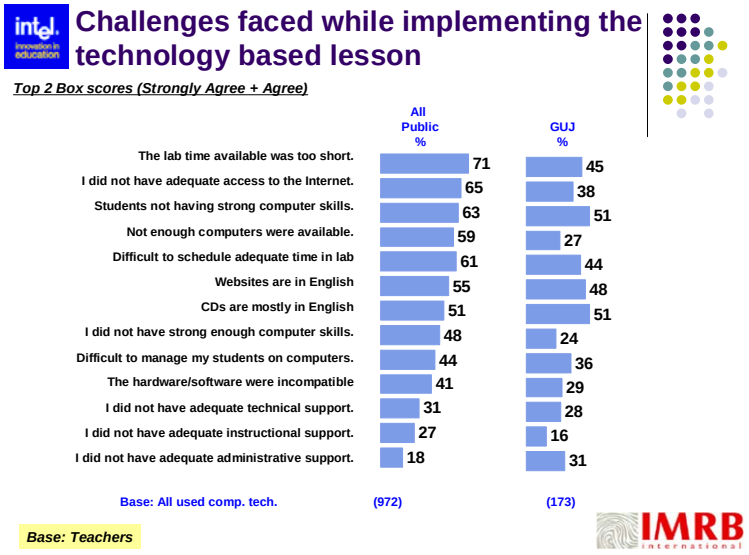
NetDay recently released the results of the first-ever Speak Up Day for Teachers, a nationwide online survey which gave teachers in all grades and subjects the opportunity to share their voices and views about their personal and professional use of technology and the Internet.

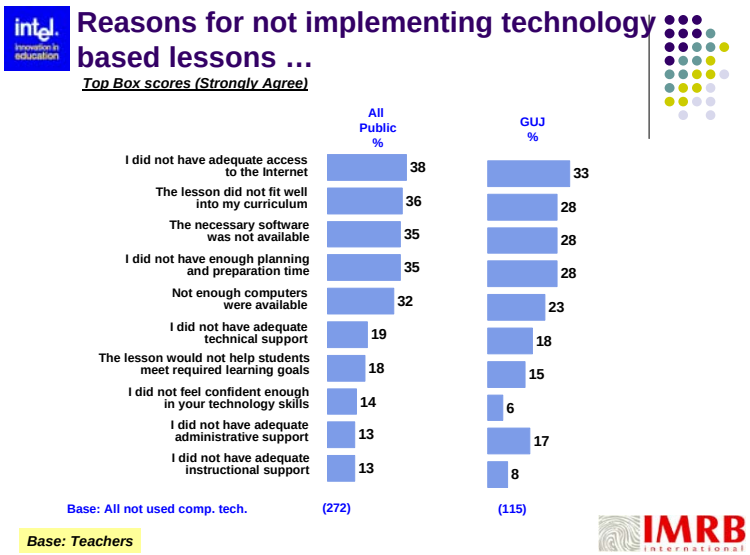
Findings

More than 11,000 teachers from 1,885 schools in 50 states completed the online survey. The survey found teachers are using technology to enrich their lessons plans and to engage students in learning. Results also revealed that teachers are relying more and more on technology to meet the requirements of No Child Left Behind.

Research # 4

IMRB evaluation study 2005, the research to evaluate the impact of technology usage on teaching learning processes. The study was involving 972 teachers who had used technology and 272 teachers who had not used technology. The study was conducted across 4 states Gujarat, Karnataka, Maharastra and Uttaranchal. Following charts are the part of the same study.





Findings

The study revealed that the biggest barriers for the ICT integrated teaching-learning environment are inadequate resources, lack of time and planning.

SOME INTERPRETATIONS FROM THE PAST STUDY AND RESEARCHES

- Though the demand for good teachers has risen sharply over years, the emphasis is never on numbers but on skills.
- Teachers are not aware of different planning and implementation strategies for using ICT in education.
- Teachers do not get adequate support of management because management is not aware of future benefits for using ICT in education.
- Teachers face difficulties in aligning technology with pedagogy because of lack of training.
- The barriers to effective integration of technology in education are inadequate equipments or teacher training.

- Teachers use technology to enrich their lesson plans and to engage students in learning where technology is integrated in education effectively.

Training the teachers for effective use of technology is of paramount importance. The educationists need to give a greater thought in this regard. The nature of teaching technology is such that a teacher has to be at the peak of his expressive powers in each piece of teaching. This is possible only if the teachers are well-trained for use of technology also. We have to evolve a suitable technique and method for training the future teachers for the same. We have to promote an atmosphere of mutual respect, a fuller understanding between teachers and students. In today's fiercely competitive environment, teachers need to communicate information pertaining to technology in a lucid and precise manner to the students. Integrated approach of the teacher is the need of hour.

SUGGESTIONS

It is very clear from the above analysis that before future teacher goes on the field and starts the work, he/she should be imparted a proper training for effective integration of technology and pedagogy i.e. techno-pedagogic skills. While working on the field they should be able to handle different situations depending upon the availability of infrastructure. They should have first rate ready solutions to cope up with school environment. Educationists should insist government to consider techno-pedagogic skills as a special subject for teacher training institutions. Government may consider partnership with non-government educational institutions to build up curriculum and evaluation system for the same. The healthy scenario of school environment rightly provides proper platform to teachers for effective integration of techno-pedagogic skills. Besides this, the government must come forward with a project which is primarily designed to equip the future teachers with ideal guidance and comprehensive infrastructure. Needless to mention here that the government should gear up and explore all the possibilities of such infrastructure for training the future teachers by considering the availability, affordability, accessibility, acceptability and sustainability of techno-pedagogic tools. Once the common infrastructure is detailed out, the

technology based teaching service can conveniently be cushioned on. It is hoped that the government will accord top priority to this plan for maximum return and brilliant career of future teachers as well as students. The place of technological skills in the curricula of schools in world has long been a subject of big controversy but its value as a means of acquiring knowledge and as a vehicle of communication in all important spheres of life has been unhesitatingly recognized everywhere. Consequently there is a growing demand for facilities and resources to improve the standards of teaching and learning both inside the class and outside in the community. Encouraging youngsters to participate in the learning experience by talking freely and without any fear of being put down helps to strengthen their personality. This has a carry-over effect on their future career prospects. This is possible only if the future teachers are well-trained for using ICT in education. Unless future teachers themselves are articulate and well-equipped enough to act as role models and give youngsters the opportunity to speak out and guide them to be creative, eloquent and rational in their speech as well as technical know-how, education will tend to lag behind modern demands.

WHAT CHANGE CAN WE BRING?

When the teachers are actually assigned the job of working on field, they will now be ready to face technology implementation related challenges and will be able to solve school level technology issues more effectively. These teachers will be able to plan the use of technology in better way. There will be perfect balance of technology and pedagogy i.e. techno-pedagogic skills at school levels. There will be the proper utilization of all resources like hardware, software and other infrastructure. The class room transaction will improve on account of proper utilization of audio visual tools. The drop out ratio in schools will decrease, as students will start taking keen interest in such type of classrooms.

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