

5. BRIDGING RESEARCH AND PRACTICE IN HIGHER TECHNICAL EDUCATION

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1.0 INTRODUCTION

The task of bridging research and practice in Higher Technical Education requires an agenda that allows for the flow of information, ideas and research questions in both directions from researchers in education to practitioners of education. It requires agenda that

consolidates the knowledge base in learning and teaching and strengthens the link between that knowledge base and each of the component that influence practice, namely, educational material, pre-service and in-service education policy makers. (See fig. 1)

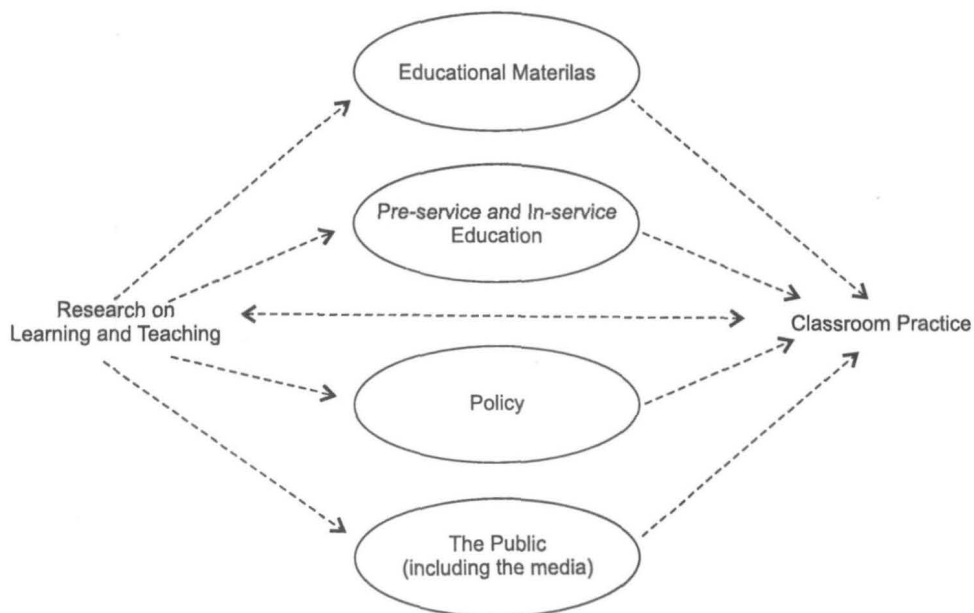


Fig. 1 Paths through which research influences practice

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The National Academic Press, USA has published a report of a Committee edited by BRANSFORD J.D., BROWN A.L. AND COCKING R.R. "How People Learn".

They also published a shorter version SUZANNE M, ET al "How People Learn – Bridging Research and Practice" 2008 13 Th Printing: NAP WashintonD.C.

The authors have observed that many of advances of science are intimately connected to search for solutions to the practical problems. Such search is user-inspired. And when executed as a part of systematic and strategic programmes of inquiry, it can support understanding at the most fundamental and basic scientific level. This also applies to educational research and educational practice. Research can be high in both basic and applied level.

The same authors further argue that the user-inspired research that is recommended in this book will demand a variety of methods and will range from controlled design to case study, with analytic methods for deriving conclusions, inferences including both quantitative and qualitative methods of substantial value.

Adopting the perspective of user-inspired strategic research and development that is focused on learning and teaching and based on many comments from the workshop and conference participants, the Committee identified five overarching themes required to bridge the gap between research and practice

Three of these themes point to the consolidation of knowledge base that would help link research with practice. The remaining two themes focus on building team effort between researchers and practitioners in an effort to build a common knowledge base on learning and teaching.

2.0 THE FIRST THREE THEMES

2.1 Elaborate the messages in "How People Learn" at a level of details that makes them

usable to each of the audience- students, teachers, and policymakers and public.

Educators and policy makers who participated in the workshop and the conference were of the unanimous view that the principle of learning described in "How People Learn" need to be substantially elaborated and incorporated into curriculum, instructional and assessment tools before its impact can be felt in the classrooms. For example, if deep understanding is the goal then it is not enough to know the subject matter related to concept. Teacher must recognize which particular concepts are relevant for the subject matter they teach. They need curriculum material that support efforts to link information with concepts. Similarly policy makers need to know quite specifically how the principle in "How People Learn" relate to states' standards. In this sense development aspect of the agenda is critical

2.2 Communicate the messages in "How People Learn" in the manner that is effective for each audience –students, teachers, administrators and policy makers.

For teachers to teach differently and policy makers and administrators to support different models of teaching, they need opportunities to learn about recommended changes and to understand what they are designed to achieve.

Research must be done on the effective methods of communication of these ideas about learning. Each one of above audience has different information needs and has different ways of learning.

Public's (Parents and media) beliefs regarding education influence how teachers, administrators and policy makers do their jobs. The Committee recommends research aimed at efficiently communicating key ideas from "How

People Learn", to the public.

2.3 Use the Principles in "How People Learn" as the lens through which to evaluate existing educational practice and policies.

The existing school practices are inconsistent with principles when viewed through the lens of principle in "How People Learn". The same lens can also be used to evaluate exemplary educational practice.

Education policymakers and administrators are eager for help in sorting out existing curriculum practices and training programmes and policies which are in alignment with the principles in "How People Learn" and which are in clear violation of them.

Moreover, educators emphasized that new ideas are introduced to schools one after another and teacher become weary and skeptical that any new reform will be better than

the last. Zealous efforts to promote the newest idea overtake existing practices that are successful. The effort to identify such successful practices will build support from those who have long been engaged in teaching for understanding.

Together these three themes that effectively bridge between research and practice will require consolidated knowledge base (which appears at the centre of fig 2) based on learning and teaching and is cumulative overtime This knowledge base is fed by research, but it also organizes, synthesizes, interprets and communicates research findings in a manner that allow easy access and effective learning for those working in each of the mediating arenas. Attending to the communication and information links between the knowledge base and each of the components of the model simultaneously enhances the prospects of alignment of research ideas and the practice.

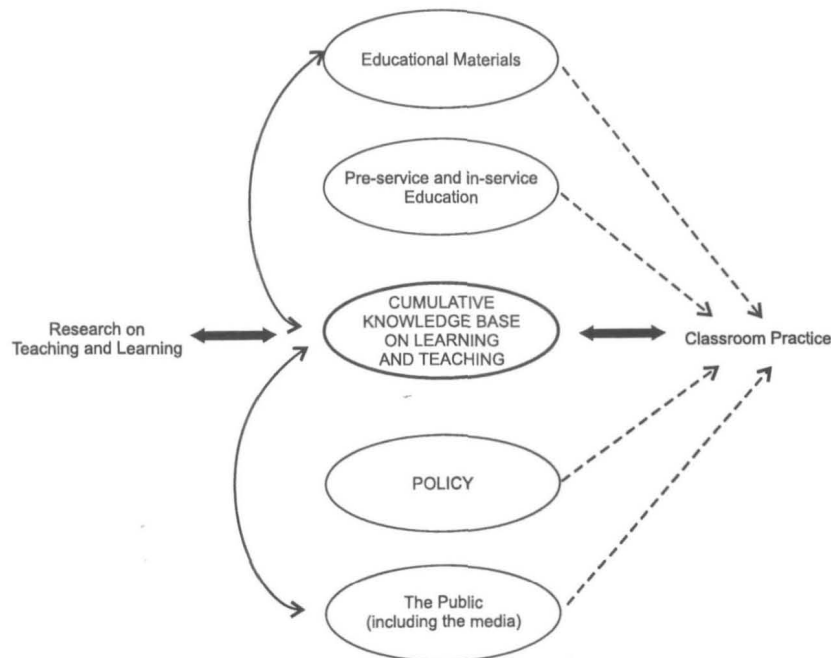


Fig. 2 Proposed model for strengthening the link between research and practice.

3.0 THE NEXT TWO THEMES

3.1 *Conduct research in teams that combine the expertise of researchers and the wisdom of practitioners*

Much of the work that is needed to bridge the research and practice focus on the education and development of teachers, curriculum and assessment tools that support teaching and policies that define environment in which teaching takes place. These are the areas practitioners have great knowledge and experience. It is critical that these teachers, HODs, administrators and policy makers partner with researchers in undertaking research projects. Such partnership allows the perspectives and knowledge to be tapped, bring awareness to the researchers of the need to and dynamics of classroom environment. Since such partnerships are novel to many researchers, exemplary cases and guiding principles will need to be developed to make more likely the successful planning and conduct of research of team partnership.

3.2 *Extend the frontiers of learning research by expanding the study of class room practice.*

Researchers and practitioners who participated in the workshop and the conference recommended expansion of research efforts that begin by observing the learning that takes place in the class rooms. The research, as earlier clarified by Stokes, may advance understanding of the science of learning in important and useful ways. These two latter suggestions - paras 3.1 and 3.2 – imply that the links between research and practice should routinely flow in both directions. The insight of researchers help shape the practitioners understanding, and the insights of practitioners help researcher shape, the research agenda and insight of researchers.

Efforts to align teaching materials, teacher education, administration and public policies and public opinions with the knowledge base

are part of ongoing and iterative research effort in which implementation of new ideas, teaching techniques,, forms of communication themselves are subject to study. The agenda, that follows proposes research and development that can help consolidate the knowledge base which appears at the centre of fig 3. and can build two way link between the knowledge base and each of the arenas that influence practice .But that knowledge base is also fed by the research on and classroom practice The Committee recommend additional research that would strengthen the understanding of learning in areas beyond “ How People Learn” by

1. investigating successful and creative educational practice;
2. investigating the potential benefits of collaborative learning in the classrooms and the design challenges that it imposes;
3. investigate the interaction between cognitive competence and motivational factors.
4. Investigate the relationship between the organization and representation of knowledge and the purpose of learning that knowledge.

The Committee in the similar vein research and development of for educational material, pre-service and in-service education, educational policy making(see fig 1)and public and media. It further proposes to research and development on communication of research knowledge by translating and elaborating that knowledge base for each audience-teachers, administrators and policy makers, and public and media.

4.0 COMMENTS ON THE COMMITTEES RECOMMENDATIONS TO NITTTR

In the foregoing paragraphs, I have drawn heavily on the wordings of the Committee report. They are therefore heavily loaded with meaning. Hence reference to the original report

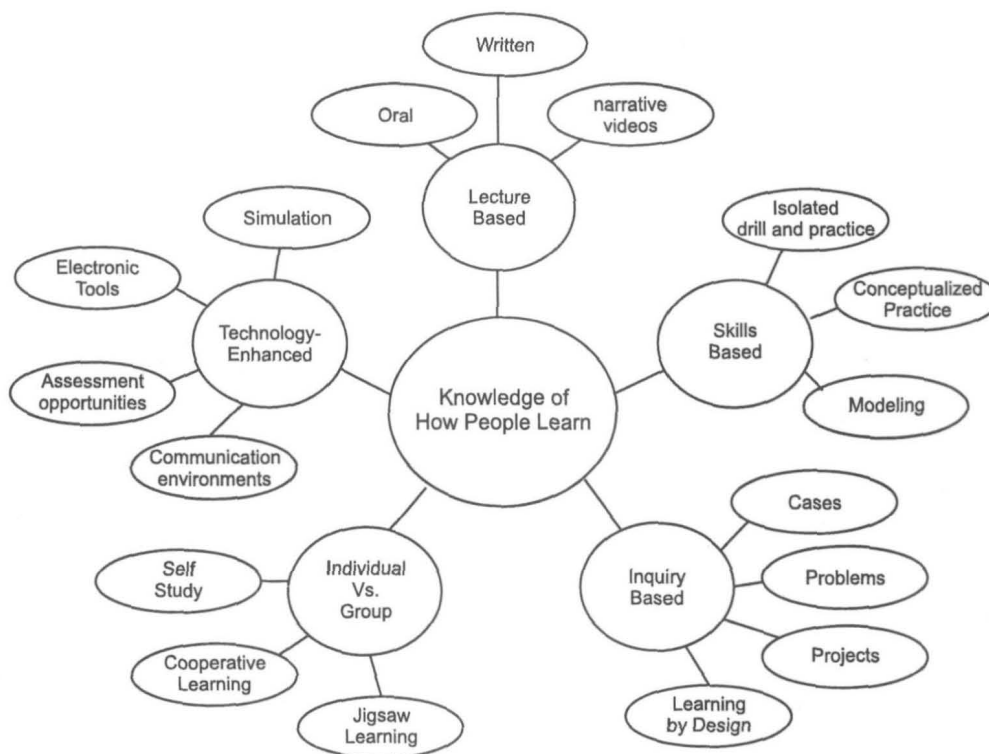


Fig. 3 : With knowledge of how people learn, teachers can choose more purposefully among teaching to accomplish specific goals.

is highly recommended in order to grasp the full meaning of what has been said above.

I find the Committee's recommendations for the research and development agenda for bridging research and practice to promote learning and teaching is very relevant to the research function of NITTTRs. These institutes are resource systems to degree colleges and polytechnics and their teachers, administrators, and policymakers and students, parents and media. All NITTTRs are also faced for the first time with the problem of defining their own research functions. After studying both the above references, and having studied deeply the themes of learning, knowledge construction and systems thinking, I find that this report indeed provides a lens through which NITTTRs can also design and develop research programmes aimed at improving quality of learning, teaching and quality of education in

general. Another aspect I myself discovered was that additional developmental research will be required to bridge the gap between research and practice. During my principal ship, when I increased my interactions with MHRD, State MOEs, Principal of Polytechnics and HODs., I found they were increasingly inclined to seek help of TTTIs initially in seeking funds for centrally aided projects. The state secretaries sought help for designing their five year educational plans. Later MHRD sought help for drafting National Policy document and still later formulating World Bank assisted projects for technician education. But research function was not specifically mentioned as the important component of the TTTIs. It was only after TTTIs were elevated to the level of NITTTRs, the name itself includes research as its important component.

As I have already stated in the past from

time to time that we have to look beyond the national boundaries. The report of the Committee on "How people learn" and its shorter version of on "Bridging Research and Practice" provide such lens through which NITTTRs can design their own R/D programmes. Increasingly, even IITs, IIMs, engineering colleges will look to NITTTRs for the research inputs on learning, teaching, curriculum development and educational planning in higher technical education. But NITTTRs will have to build the necessary knowledge base and they have to hurry up.

Honourable Minister of MHRD, New Delhi in his interview with the Times of India correspondent (TOI dated 07-03-10) in reply to the question "Your detractors say that you are in a hurry?" said:

"It is not individual; India should be in a hurry. The most valuable asset we have is our own children. A day's delay in investing dilutes the value of our assets. If I could have done things yesterday, I would have "

NITTTRs need to be in a hurry to focus now equally on the research function. This alone can feed the existing education and training and the extension training programmes for teachers

and administrators and policy makers of Higher Technical Education. Greater the delay in the project, greater will be the harm done to the students and teachers of higher technical Education and lesser will be their capability to meet challenges looming ahead in future.

NITTTRs are the only resource systems available to their clients in Higher Technical Education.

ARE NITTTRs READY FOR THIS ENDEVOUR!

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