

Redefining Instructional Strategy in Teacher Education in the Perspective of Knowledge Society

Theme: Formal Education-Revamping Teacher Education

Dr. Sutapa Bose
School of Education, IGNOU
sbose@ignou.ac.in

"It is a truism that the way in which teachers have learnt will reflect itself in the way they teach"- Bigge & Hunt (1980)

Abstract

Revamping teacher education as a precondition for reforming school education is a leitmotif of many policy papers on educational reform. Yet the much criticised traditional practices continue to shackle teacher education. One of these is the delivery of instructions. It is still fastened to predominantly didactic approaches, upholding knowledge as product and human mind as container metaphors. This article argues that this approach is oblivious of teachers' need for experiences that nurture reflection, innovation and lifelong learning that enable them to foster these abilities in their students, the future knowledge workers. Drawing upon the epistemological shift that frees knowledge from its concept as a product meant for linear transmission and amassing, collaborative knowledge application and creation by trainees have been considered as the aims of delivering instructions. Hence, a paradigm has been suggested that acknowledges the tacit nature of knowledge of teaching and rests upon the social constructivist approach to knowledge construction. The dimensions of the paradigm conceptualised are in the context of competencies required by knowledge workers - autonomy, innovation, lifelong learning, collaboration and use of technology for creating shared understanding.

Keywords: teacher education; knowledge society; instructions; autonomy; innovation; lifelong learning; collaboration

Introduction

George Bernard Shaw in his play, 'Man and Superman' (1903) had said that "he who can does. He, who cannot, teaches". Radically opposing this adage on teaching is that of Lee Iacocca, the famous American businessman who had said, "in a truly rational society, the best of us would be teachers, and the rest would have to settle for something less". It is the second assertion that is reflected in the faith reposed by Abraham Lincoln in teachers in his famous letter to his son's teacher. A knowledge society, which India aspires to be, also looks up to its teachers, since the onus lies on schools to develop future knowledge workers with grounding in practices like reflection, innovation and collaboration (New Zealand Council for Educational Research, 2009). The National Knowledge Commission (2005) of India has also said that knowledge workers will be developed in today's educational institutions, especially schools. In 2000, as the Lisbon European Council decided to become a competitive and dynamic knowledge based economy, one of recommendations made for achieving it was to improve education by recognizing the changing role of teachers in a knowledge society and preparing teachers to play this role effectively. Hence, educational systems, especially those operating at the foundation level need to be manned by teachers competent to teach children to advance knowledge with processes like theorizing, inventing, innovating and designing in collaborative way (Moreno, 2005; Tan et al., 2006).

If teachers are expected to possess certain competencies, it has to be ensured that they are prepared for it especially through pre-service education. We can promote an educational system with highly skilled teachers, capable of generating ingenuity and creativity in children, provided they experience creativity and flexibility and are themselves developed

as knowledge society professionals (Hargreaves, 2003). However, today there is a world wide concern about teachers' ability to prepare students for the 21st century and the knowledge society and there is little faith in the pre-service education provided to them. Pre-service teacher education is almost everywhere, one of the most obsolete pieces of education systems (Moreno, 2005). Quality of teacher education programs and the ability and/or willingness of universities to provide innovative programs that will produce better-prepared teachers are being questioned (Hitz, 2004). The Carnegie foundation of New York said that the quality of the teacher is the most important cause of pupil achievement but no real change in teacher training has been tried (Marcus, 2002). There is an overall lack of political and public confidence in teacher training systems and a profound mismatch between the radically new key competencies demanded from students in the knowledge society and the teaching skills that teachers are equipped with following their training in teacher training colleges and in-service training programs (Moreno, 2005). Schools of education are being blamed for mediocrity in preparing teachers for the 21st century classrooms and have been urged to make radical changes in the teacher-training programmes they offer (Schwab et al., 2003; Field, 2009). Hence, there is a need for overcoming the challenge of making teaching, a neglected and an under-appreciated occupation into an elite, research-based profession (deCourcy Hinds, 2002).

Although both pre and in-service teacher education are important, in this paper only the former has been considered. Though many aspects of pre-service teacher education need to be redefined (Deepa, 2006) but only one aspect, the instructional strategy adopted in pre-service teacher education programmes has been considered. It has been argued that the current practice of delivering lectures needs to be substituted by those appropriate for nurturing the competencies needed by teachers of the knowledge society, who can in turn prepare knowledge workers.

Instructional strategy for preparing teachers as knowledge workers

Teaching methods have not evolved sufficiently and transmission with lectures, books and marked assignments dominate in most of the educational institutions. Digital technologies used are also for supporting this model. This kind of use of technology fails to tap the potential of technology for interactive and collaborative learning (Laurillard, 1993; 2002; Kittl & Edegger, 2009). This is also true for teacher education programmes in India. Even the benefits of integrating Information and Communication Technology (ICT) in educational processes are taught through lectures (Bose, 2006). It is a superficial approach to pass on knowledge and is based on behaviourism, which considers knowledge to be consisting of verbalisation. It contradicts the cognitive field theories which view knowledge acquisition to be purposive, requiring understandings and insights (Bigge & Hunt, 1980). Didactic practices are in vogue in teacher education institutions and teacher educators are expected to teach rather than facilitate educational processes (Scott, 2008). Thus, valuing of oratory skills and the oldest model of communication -Aristotle's 'rhetoric' are in vogue.

Teaching aims to fill minds with information and test reproductive learning. But in the knowledge age, education needs to overcome such 'mind-as-container' metaphor and acknowledge the capability of mind of sustaining knowledgeable, intelligent behaviour without amassing information and the need for knowledge building along with learning (Bereiter, 2002). This indicates an emerging epistemological shift as knowledge is no longer considered as a fixed product for filling minds through didactic linear transmission. This is in line with the competencies demanded of knowledge workers viz. autonomy, innovation, lifelong learning, collaboration and use of technology for creating shared understanding (Drucker, 1999; Tan et al., 2006) that does not treat knowledge as a fixed entity meant to be amassed. These competencies cannot be developed through verbal linear communication of information which ignores the social constructivist approach to learning. It also fails to acknowledge that much of the knowledge required for teaching is context-specific, i.e. tacit (Moreno, 2005) that cannot be gained through classroom lectures with little scope for autonomy, innovation and problem solving. If teachers are to develop in their students these abilities the instructional strategy adopted for them should overcome the present bias for lecture and include projects and field based work using ICT to encourage collaborative knowledge application and creation by trainees. Hence, there is need for an instructional paradigm which acknowledges the tacit

nature of knowledge of teaching and rests upon the social constructivist approach to knowledge construction. The dimensions of the paradigm may be in the context of the competencies required by teachers of the knowledge society- autonomy, innovation, lifelong learning, collaboration and use of technology for creating shared understanding. The dimensions have been conceptualised as follows:

Developing Autonomy

Albert Einstein had said 'I never teach my pupils. I only attempt to provide the conditions in which they can learn'. Therefore, there is need for learners to take charge of their learning (Holec,1981) through abilities for self learning, critical thinking, collaborating, communicating, information processing, problem solving and the like (Hung & Khine, 2006) leading to cognition as well as metacognition. Teacher education colleges can foster learner autonomy by putting into practice the concept of 'engaged learning'. Engaged learning demands self regulated learners who explore and collaborate to complete tasks that are closely related to real world problems that are multidisciplinary, challenging and authentic within knowledge building learning communities that intend to develop shared understanding that are personally meaningful and practically functional representations (Ryu & Parsons, 2009). The teacher is the facilitator and the learners are reflective explorers while assessment is continuous and encouraging (Jones et al., 1994). Learners would therefore, need to define problem-spaces, formulate questions, possess a broad and developed repertoire of problem-solving skills for addressing structured as well as ill defined and unstructured tasks, have skills for collaboration and communication necessary for classroom interactions (Buchberger et al., 2000). Therefore, instead of lectures with solutions, trainees may be encouraged to solve problems encountered in field situations, like classroom management, inclusive education, enhancing student achievement, working with parents and so on through extended field work, collaborative projects, guided discoveries and the like. This is because as per the modern cognitive field psychology, problems are felt and identified instead of being given (Bigge & Hunt,1980).

Continuing innovation

In the knowledge age innovation and knowledge building have a strong, albeit complex relation (Popadiuk & Choo, 2006). However, as there are no established methods and theories of educating people to be producers of knowledge, trainees may be taken through a developmental trajectory beginning with an approach that helps the acquisition of foundational knowledge (of what is known), followed by the approach of mastering sub skills like critical thinking, scientific method and collaboration (also called the 21st century skills) and subsequently assembling them into a research design for knowledge creation. The third and final approach would involve knowledge creation through learning communities, projects, guided discoveries, and the like, while taking caution to avoid shallow constructivism, in which ideas have no overt presence but are implicit (Scardamalia & Bereiter, 2002; Tan et al, 2006). Teacher educators will therefore need to facilitate action researches, and other collaborative projects with such caution.

Life Long Learning (LLL)

The term professional development is getting increasingly replaced by the broader and more significant term lifelong learning (Fenwick, 2001) as knowledge society is a learning society with knowledge and competences evolving continuously. Teachers being potentially the most important asset in the notion of a learning society need to be life long learners (Day, 2001). The Lisbon European council had also recommended in 2000 the need for teachers to be life long learners. In every day life, life long learners try to solve problems, share ideas and understand situations. Hence, for making contextualized life long learning happen in practice, training in reflection and problem solving is needed. Technology should also be used to help learners access, compose and manage their learning under various circumstances (Dimakopoulos & Magoulas, 2009). Hence, ICT integration and scope for problem solving are needed during teacher education.

ICT mediated collaboration

A knowledge society is a “networked” society and requires the ability to continually advance knowledge collaboratively (Tan et al., 2006). Teachers traditionally work in isolation. They need to know how to structure interactions among students and collaborate with other teachers and parents (Shulman, 1992). This requires trainees to have collaborative learning experiences. This proposition also fits in well with the social constructivist approach to learning that views knowledge creation occurring first in a social context and then being appropriated by individuals (Bruner, 1960; Bandura, 1977; Vygotsky, 1978; Bruning et al., 1999; Duffy and Jonassen, 1992) and is best supported through collaborations designed so that participants share knowledge and tackle projects (Scardamalia & Bereiter, 2002).

ICT integration and collaborative learning can be intertwined. This is because new collaborative technologies enable active production of shared knowledge (Graboswki et al., 2009). There are a number of computer applications that facilitate collaborative knowledge construction (Dias, 1999; Jarvela et al., 2001) and this potential has to be tapped by teacher educators. Web 2.0 technologies like wikis, blogs and podcasts if effectively deployed at teacher education institutions could also enhance learning experiences, and deepen levels of learners' engagement and collaboration (Boulos et al., 2006) as they can support conversational interaction, feedback and social networking (McLoughlin et al., 2007). There is therefore, an emerging need to redefine pedagogy in teacher education institutions and harness web 2.0 technologies to promote collaborative learning (Safran et al., 2007).

Conclusions

Knowledge society requires abilities to reflect, act with autonomy but work collaboratively for creating knowledge and be lifelong learners. In response to these demands of the knowledge society and the teaching profession, teachers need to be prepared suitably. The paradigm suggested for this is based on the dimensions that call for teacher educators to facilitate engaged learning with scope for autonomy, problem solving and collaboration especially through ICTs.

References

- Bandura, A. (1977). *Social learning theory*. New York: General Learning Press.
- Bereiter, C. (2002). *Education and mind in the knowledge age*. USA: Routledge.
- Bigge, M. L. & Hunt, M.P. (1980). *Psychological foundations of education*. New York: Harper & Row Publishers. 474.
- Bose, S. (2006). Enhancing professionalism through ICT integrated teacher education programmes: An exploration. *Teacher Education. Indian Association of Teacher Educators*. XL (2).
- Bruner, J. (1960). *The process of education*. Cambridge, Mass: Harvard University Press.
- Bruning, R. H., Schraw, G. J., & Ronning, R. R. (1999). *Cognitive psychology and instruction*. Upper Saddle River, NJ: Merrill.
- Buchberger, F. (2000). Green paper on teacher education in Europe. In F. Buchberger, B. P. Campos, D. Kallos, & J. Stephenson, J. (Eds.). *Thematic Network on Teacher Education in Europe*. Sweden: Fakultetsnämnden för lärarutbildning, Umeå universitet.
- Day, C. (1999). *Developing teachers: The challenges of lifelong learning*, London: Routledge Falmer.
- deCourcy Hinds, M. (2002). *Teaching as a clinical profession: A new challenge for education*. Carnegie Challenge 2002 paper. New York: Carnegie Corporation of New York.

- Deepa, A. (2006). Teacher training : An instruction set for teachers. *India Together*.
<http://www.indiatogether.org/2006/mar/edu-tchtrain.htm#continue> Retrieved on June, 2,2010
- Dias, B.L. (1999). *Integrating technology: some things you should know*. ISTE - L&L 27(3).
<http://www.dirkdavis.net/cbu/etc520/resources/Integrating%20Technology.pdf>
 Retrieved on June,2,2010
- Dimakopoulos, D.N. & Magoulas, G.D.(2009). An architecture for a personalized mobile environment to facilitate contextual lifelong learning. In H. Rue & D. Parsons (Eds), *Innovative mobile learning: techniques and technologies*. New York: Information Science Reference.232-233,250.
- Drucker P.F. (1999). Management challenges for the 21st century, Oxford: Butterworth-Heinemann.
- Duffy, T.M. & Jonassen, D. (Eds.), (1992). *Constructivism and the technology of instruction:A conversation*. Hillsdale NJ: Lawrence Erlbaum Associates.
- Fenwick, T.J. (2001) *Fostering teachers' lifelong learning through professional growth plans: a cautious recommendation for policy* prepared for the 2001 Pan-Canadian Education Research Agenda Symposium Teacher Education/Educator Training: Current Trends and Future Directions. May 22-23, 2001 Laval University, Quebec City.
- Field, K. (2009). Revolutionary changes needed in teacher –training programme. *The Chronicle of Higher Education*, Friday, October 30, 2009.
<http://chronicle.com/article/Duncan-Urges-Revolutionary/48896/> Retrieved on July,3,2010.
- Graboswki, M. Lepak,G. & Kulick,G.(2009). Collaborative technology impacts. In distributed learning environments. In H.Rue & D. Parsons (Eds), *Innovative mobile learning: Techniques and technologies*. New York: Information Science Reference. 124.
- Hargreaves, A. (2003). *Teaching in the knowledge society: education in the age of insecurity*. New York: Teachers College Press.
- Holec, H. (1981). *Autonomy and foreign language learning*. Oxford: Pergamon
- Hitz, R. (2004). Editorial. *Educational perspectives teacher education reform* 36(1).& (2) . <http://www.hawaii.edu/edper/pdf/Vol36/3-7.pdf> Retrieved on July,7,2010.
- Hinds,M.C.(2002). *Teaching as a clinical profession: A new challenge for education*. Carnegie challenge 2002.Carnegie Corporation of New York.
- Hung,D. and Khine, M. S. (2006). *Engaged learning with emerging technologies*. Netherlands: Springer.
- Jarvela,S. Hakkarainen, K., Lipponen, L. & Lehtinen, E. (2001). Creating computer Supported collaborative learning in Finnish schools: research perspectives on sociocognitive effects. *International Journal of Continuing Engineering Education and Life Long Learning*. 11 (4-6). 365 – 374.
- Jones, B., Valdez, G., Nowakowski, J., & Rasmussen, C. (1994). *Designing learning and technology for educational reform*. Oak Brook, IL: North Central Regional Educational Laboratory. <http://www.ncrel.org/sdrs/engaged.htm> Retrieved on July,3,2010.
- Kittl, C. & Edegger,F. & Petrovic,O. (2009). Learning by pervasive gaming an empirical study in distributed learning environments. In H.Rue & D. Parsons (Eds), *Innovative mobile learning*. New York: Information Science Reference. 61-62.
- Laurillard, D. (1993). Balancing the media. *Journal of Educational Television*, 19(2), 81-93.
- Laurillard, D. (2002). Rethinking teaching for the knowledge society. *EDUCAUSE Review* January/February 2002. <http://net.educause.edu/ir/library/pdf/erm0201.pdf> Retrieved on July,3,2010.
- Marcus,J. (2002). Carnegie demands revamp of teacher training. *THE*.

<http://www.timeshighereducation.co.uk/story.asp?storyCode=171819§ioncode=26> Retrieved on July,3,2010

- McLoughlin , C. & Lee, Mark J.W. (2007) Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era. *International Journal of Learning Technology*.3 (1), 87-107.
- Moreno, J.M. (2005). Learning to teach in the knowledge society final report. Task Manager (HDNED, World Bank).
- New Zealand Council for Educational Research (2009). *The knowledge age, shifting to 21st century thinking in education and learning*, http://www.shiftingthinking.org/?page_id=58 Retrieved on July,3,2010
- Popadiuk, S. & Choo,C.W. (2006). Innovation and knowledge creation: How are these concepts related? *International Journal of Information Management*, 26(4), 302-312.
- Rue, H. & Parsons, D. (Eds), *Innovative mobile learning: Techniques and technologies*. New York: Information Science Reference. 61-62.
- Schwab, R.L., DeFranco, T.C. and McGivney-Burelle,J.(2004). Preparing future teacher-leaders: Experiences from the University of Connecticut's five-year teacher education program. *Educational Perspectives Teacher Education Reform*, 36 (1) & (2). <http://www.hawaii.edu/edper/pages/vol36n1-2.html> Retrieved on July,3,2010
- Safran, C. Helic, D. & Gütl, C. (2007). E-Learning practices and Web 2.0. *Conference ICL 2007*, September 26 -28, 2007.Villach, Austria
- Scardamalia, M., & Bereiter, C. (2002). Knowledge building. In *Encyclopedia of Education, Second Edition*. New York: Macmillan Reference, USA. <http://chronicle.com/article/Duncan-Urges-revolutionary/48896/> Retrieved on July,3,2010.
- Scott, D. (2008). *Critical essays on major curriculum theories*. London and New York: Routledge.
- Shulman, L. (1992, September-October). Ways of seeing, ways of knowing, ways of teaching, ways of learning about teaching. *Journal of Curriculum Studies*, 28, 393-396.
- Tan, C.S., Hung,D. and Scardamalia,M. (2006) Education in the knowledge age – engaging learners through knowledge building. In D. Hung and M.S. Khine (Eds.), *Engaged learning with emerging technologies*, 91-106. *Netherlands: Springer*.
- Vygotsky, L. S. (1978). *Mind in society : The development of higher psychological processes*. (M. Cole,V. John-Steiner, S. Scribner, & E. Souberman Eds.). Cambridge, MA: Harvard University Press.