

ICT Infusion, Education Paradigm and Sustainable development Bhupindar Singh

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1. INTRODUCTION

The desire to integrate traditional classroom learning with technological tools to accelerate the development process still remains to be fulfilled in India. In the study by Zadeh(2002), by entrance of ICT in education, focus needs to be given on modern pedagogy whereby learning and teaching is a sustained process that well understands the importance of cooperative learning, providing of active and transaction learning process, project based educational activities, and partnership in knowledge production, self guidance and scientific skills. In a study by Toure(2009), the constructive infusion of Information and communication technology(ICT) in School education for ground breaking cost effective proposals has engrossed attention for educational institutions and businesses.

2. POTENTIAL AREAS TO BE ADDRESSED BY ICT IN INDIAN EDUCATION SECTOR

2.1 Disparity of Concentration in major disciplines- Ministry of Human Resource Development 2013 states, major ICT importance and enrollment concentration in Arts (33.79%), Engineering & Technology (18.89%) and Commerce (14.51%) while other disciplines such as law, medical science, management, agriculture, foreign languages and social science are quite dated from ICT inclusion. The soaring cost of professional education has quite encouraged individuals to deviate from their interest and career path to pursue search for jobs in the dried current fields.

2.2 Low Public expenditure and Negligible Research: The expenditure on research and development initiatives for developing tools, for effective infusion of ICT in education has remained stagnant at 4.4% over past years (UNESCO Institute of Statistics, 2014), which accounts for the continued negligence by the government and also non-quality research publications¹.

2.3 Digital Divide and Governance: The notion that enormous disparity between the information rich and poor resulted from ICT development remains broadly prevailed. There is a lack of understanding of students' different learning modes as well as social dimensions of software (Anderson, 2007). More profoundly, inadequate reach and uninterrupted internet connectivity for individuals across all geographies at unaffordable rate remain major challenge (Javidian et. Al, 2005). Despite privatization and liberation of telecommunication industry, digital connectivity is still difficult to afford.

According to World bank report 2010 on governance of higher education in India, higher education suffers from decentralization of powerbase, accessibility to higher levels, answerability at all levels, attainment of equity in educational opportunity and social and employment relevance of higher education. Education sector suffers from equitable resource allocation with financial autonomy to states in utilizing the funds based on their local needs, ambiguity in operations and reluctance in financial disclosures (Thapliyal, 2013).

¹ <http://www.aiiserver.com/glf/wp-content/uploads/2011/03/Research-and-higher-ed-in-state-universities-in-India.pdf>, pg: 361

2.4 Unregulated Private Sector and foreign influence: The inequity with education distribution platforms in India; 73% are privately managed colleges (58% unaided and 15% aided) in contrast to 27% Government colleges (Ministry of Human Resource Development on Higher Education, 2013). Undoubtedly, private sector has played a vital role in raising the enrolment rates. Majorly, this is driven by vast competition, high disparities, inadequate public sector educational absorptions and traditional ideas of instruction. The placing of fewer or hardly much regulations on private sector has led education as a commodity of profit making business (Evans, 1995).

2.5 Policymaking and Curriculum Designs: The deterioration of quality in education² is the result of ineffective and outdated framework by policy makers and incompetent curriculum designs from school to higher education. The consideration of efficient infusion of ICT in education with the curriculum has still to identify its assimilation.

2.6 ICT in conflict affected zones: The vast expanse of Indian subcontinent is affected by conflicts. The central region being plagued by war between Maoists and state, the northern region of Kashmir has been marked by subsequent conflicts with both India and Pakistan, laying their claim. Peace education through ICT is another important facet with a huge potential. It is easier to take advantage of people who are ignorant, more so the reason of breeding hate amongst the population that is on receiving end of war and violence.

3. ICT impact on Curriculum priorities and Professional development

UNESCO (2010) summarized that the hurdle is to overcome the resistance to incorporate new approaches and digital tools in teaching and insecurity driven by competition from digital learning. Deficient faculty supply, inequitable distribution of teachers among schools and regions and difficulty in faculty retention contributes to ineffective teaching. The expected benefits of ICT in linking education with development process and key competencies obtained from school learning doesn't match, wondered if there are industries to recruit the products of all courses. The career switch jobs/concentration on specific courses are challenging the mental orientation and proving unethical on professional fronts.

Several studies (Laval & Hinistroza, 2002) suggest that India is witnessing adoption of new ways of learning through ICT, update of curriculum from the very bottom, evaluation methods, creating incentives to all schools to support for ICT training in personnel, reward mechanisms to update ICT technical skills for faculty members to integrate professional development throughout the career which in turn improves leadership and school climate. Blumenfeld et al. (2006) states that the key issue is to merge teacher's professional development with fulfilling the school needs.

Mckinsey(2012) cites major concern around the course content with language barrier, where just 12% of Indian population speaks English and so the digital adoption has to be waved with more local language content and application.

The UNESCO Global Monitoring report 2014, places India on a huge stock pile with 40% adult illiterate population, the internet penetration(McKinsey, 2012) a mere 10% populace and further computer literacy(Sharma, 2014) outreach to 6% have raised question over the growth of the nation home to the largest youth population in the world.

² http://articles.economicstimes.indiatimes.com/2011-11-09/news/30377763_1_education-policy-basic-education-schools -and-colleges

4. SPECTRUM OF THINKING and PEDAGOGY INNOVATION

The learning processes act as drivers of knowledge inducing capabilities. In all, the approach is said to be systemic as in that it sets out a boundary across the complex unity and overtly treat this unity as a whole (Fig.1).

The core idea here to interpret is the capacity of system for self making, self production and self renewal, defined as closed loops; the self referential systems that endeavor to change the shape themselves in adaptable form. The scenario making can be viewed as building block to systemic approach to innovation. The scenario planning can be optimistic, pessimistic and the status quo, or two opposite scenarios.

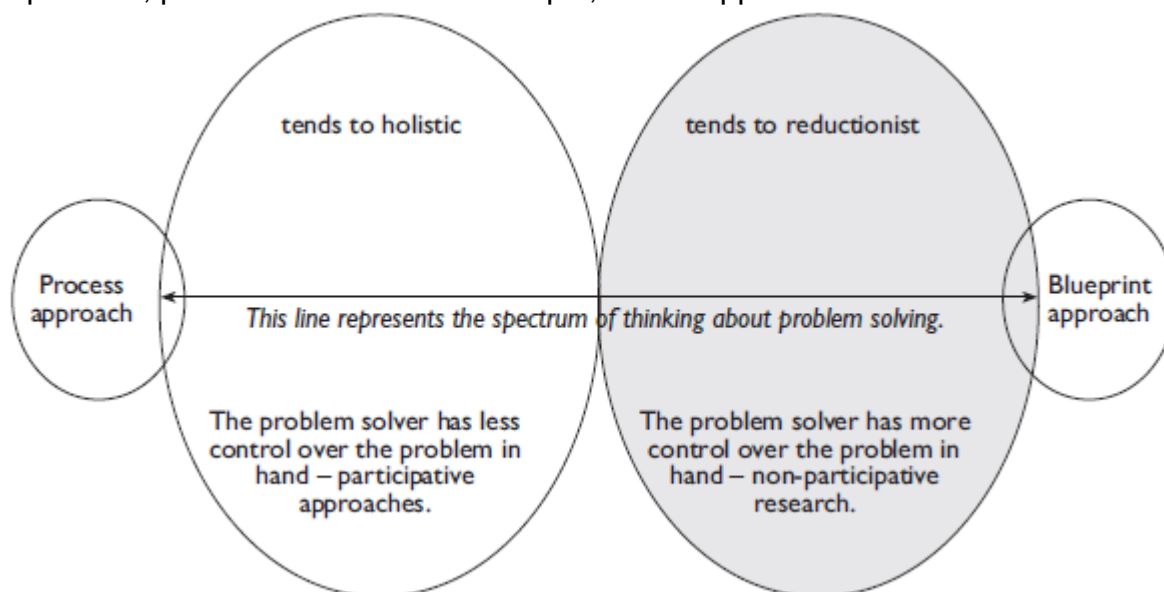


Fig 1. Spectrum of thinking and pedagogy innovation

The changes in perception can involve changes in thinking, which can be thought of a shift in paradigm'. The unpacking of thoughts relates to participation, learning and thinking in different ways. The changes being in discussion may not represent the path movement from wrong to right way; rather it's a movement from one paradigm to another. The approach towards same may follow 'holistic' or 'reductionist' one. The approaches, acting as a serviceable pair of complimentary concepts; differ with level of pressure, response and the driving forces being exerted on the spectrum.

5. Space and Time Characteristics in ICT development and Education

The spatial level with space and time(Fig.2) defines the scale for the ICT development to sustain in education system and the equilibria under which the key indicators are interlinked. The development would have to closely assess the degree of impact in negative or positive on the professional development. Further, the region specific imbalances could define the direct/indirect proportionality to the education ecosystem development and sustainability. The system quality has to perform careful selection of scale of reference points can be used to prove almost everything.

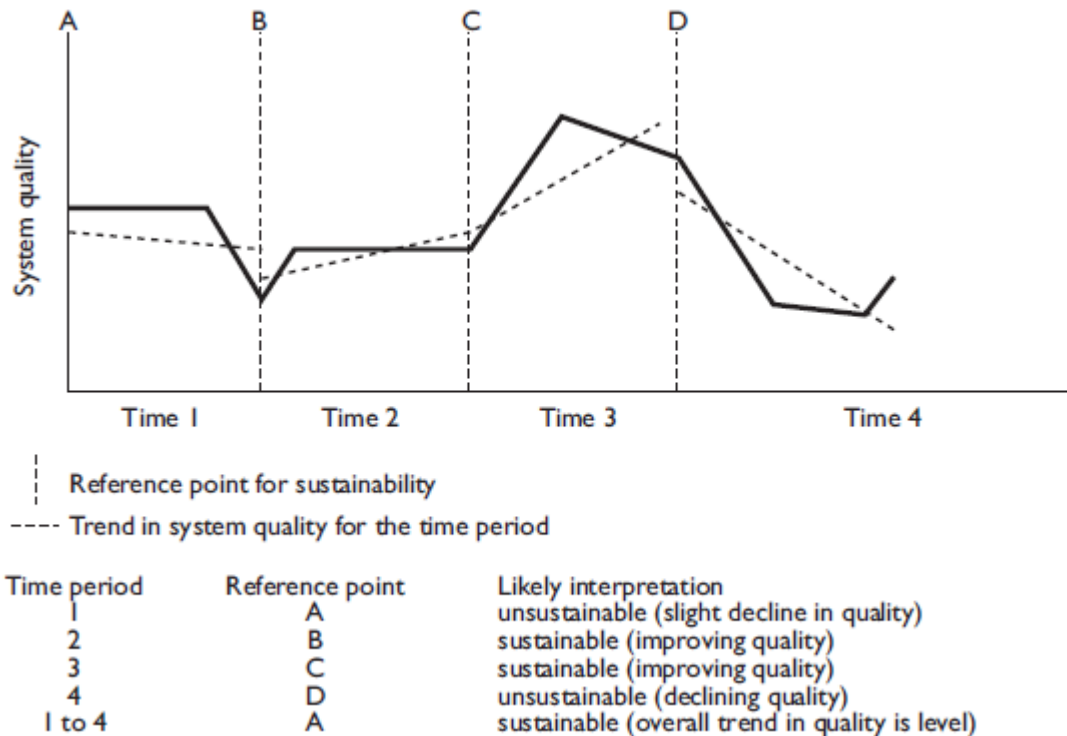


Fig. 2 Space and Time characteristics on ICT in Education

The access to ICT can be measured when the communities are put under stress, as some incipient would generally refuse to accept the change and others may be sensitive to a change in environment; whereby over the defined time period and within and space the improvements with impact assessment can be done.

6. Learning organization and Self contained approach

The five disciples; system thinking, personal mastery, mental models, shared vision and team learning constitute the part of the system. Further the cycle has to be virtuous rather than vicious; it should epitomize itself with continuous change, feeding on itself. This requires a balancing and adaptive action to gain stability, equilibrium and sustainability.

There are multiple implication in an attempt to adopt an approach dealing with the wholes. The transformation (movement to change) has fundamental impacts when applied to self awareness and belief systems. It can cause considerable mental problem in orientation: the transition of oneself from observer of a reality to which is considered to be divorced from context to the one deeply involved in, and then towards the co-creator of reality, requires fundamental cognitive and emotional orientation.

7. Conclusion

The developing India to adapt technologically knowledge would widely depend on specific developmental, economic and socio-cultural needs. The educational institutions would require developing strategic planning where vision and mission commend teaching and learning processes needs before the adoption of digital tools and techniques (Balash et al., 2011). In addition, the Internal (Economics of Education) and External(Industry standards) market environment requires to be assessed to recognize those factors which help in meeting their objectives and goals and overcome the obstacles for their achievement.

References

1. Balash, F., Yong, Z. & Abu, B.B. (2011). *Lecturers and ET: Factors affecting ET adoption in teaching*, 2nd International Conference on Education and Management Technology IPCSIT, Vol. 13, Singapore
2. Blumenfeld, P., Kempner, T. & Krajcik, J. (2006). Motivation and cognitive engagement in learning environments. In R. K. Sawyer (Ed.), *Cambridge Handbook of the Learning Sciences* (pp. 475-488). Cambridge: Cambridge University Press.
3. Ebrahim Zadeh, E. (2002). Approach is necessary to open and distance education system and the use of technology in teaching and learning process is organized. *Journal of Peik Noor*, 1:8.
4. Evans, P. (1995). *Embedded autonomy: States and industrial transformation*. Princeton: Princeton University Press.
5. Javidian, R., Lari, M.A. & Janati, S. (2005). ICT, challenge and opportunity equality. *Journal of Rahavard*, 13.
6. McKinsey & Company. (December 2012). *Online and upcoming: The Internet's impact on India, Technology, Media, and Telecom Practice*
7. Ministry of Human Resource Development. (2013). *Annual report by Department of School Education & Literacy*, Department of Higher Education, Govt. of India. Retrieved from website: <http://mhrd.gov.in/documents/term/82>
8. Sharma, O. (April, 2014). India's Growth Engine cannot accelerate sans Digital Literacy
9. Thapliyal, U. (2013). Equity in Higher Education: Exploring the Role of ICT, *University School of Open Learning, Panjab University, Chandigarh, India* Vol. 2, No. 9, September 2013
10. Toure, K. (2009). Appropriating technologies and making them work for you in teaching and learning: depth is essential.
11. UNESCO. (2010). *ICT in Teacher Education: Policy, Open Educational Resources and Partnership, Russia*.
12. UNESCO Institute of Statistics. (2014). Information and Communication Technology (ICT) in Education in Asia. Retrieved from <http://www.uis.unesco.org/Communication/Documents/ICT-asia-en.pdf>.
13. World Bank Working Paper no. 190. (2010). *Governance of Technical Education in India Key Issues, Principles, and Case Studies*. DOI: 10.1596/978 0 8213 83414.
14. Zadeh, E. (2002). Approach is necessary to open and distance education system and the use of technology in teaching and learning process is organized. *Journal of Peik Noor*, 1:8.