BRSN
VISION

BRSN Vision

Peer Reviewed Multidisciplinary Journal

BRSN Vision

Contents

BRSN Vision

Editorial Board 2016

Lost Teaching Days and the Growing Purposelessness of Higher Education in the State: Examination Reforms and Use of Technology as a Solution

Tilak Chatterjee[1], Suchandra Biswas[2]

Abstract

Higher Education Institutes (HEIs) in the state today is facing one major challenge in the form of non fulfillment of the UGC norms of observing 180 teaching days in an academic year. The regulation requires that each teacher should remain involved in direct classroom teaching - fully dedicated to direct classroom teaching only without any examination duty or admission duty or any other related academic activities. Colleges in general hardly observe 30 teaching weeks in a six day week and thus 180 actual teaching days by any teacher is not conformed with. Furthermore students in general show very less propensity to come to classes regularly to learn from the teachers in the class. This is making the higher education system increasingly purposeless as students tend to depend more on tutor based teaching learning with the associated menace of rote learning and suggestive preparation for examination.

The central objective of this paper is to suggest a possible solution for overcoming the above challenge and observes that major examination reforms are needed to remedy the entire problem.

1 *Associate Professor of Economics, Bankim Sardar College, West Bengal; E Mail: writetilak@gmail.com*
2 *Assistant Professor of Chemistry & IQAC Coordinator, Bankim Sardar College, West Bengal*

Introduction

UGC Regulations on Measures for Maintenance of Standards in Higher Education (F 3 – 1/2009 dated June 30, 2010) spells out that the workload of the teachers in full employment should not be less than 40 hours a week for 30 working weeks (180 teaching days) in an academic year.

In pursuance to the above regulation of the UGC, several state governments - across the country - have promulgated orders that asks the colleges to observe 30 teaching weeks in a six day week so that teachers can involve themselves in direct teaching for at least 180 days.

In West Bengal too, the Government by appropriate order (920 – Edn(CS)/5P-52/98 dated 31/12/2012) stipulates that college must observe there should be minimum of 30 weeks of actual teaching in a six day week. The Universities by way of promulgating appropriate statutes conforms to the UGC regulations.

This requirement however is rarely fulfilled. On the average it is being observed that

1. More or less 110 days gets consumed as Sundays, Holidays and vacation
2. Not less than 40 days gets consumed for summer and winter recess
3. For at least 15 days the colleges remains closed for elections - parliamentary, assembly or local
4. Another 45 days teaching days are lost for reasons related to examinations and admissions
5. Then there are at least 25 days when no students are available particularly after selections tests

Therefore it is evident only 125 days are left over as

teaching days. As a result it is being observed that a first year students at the most get 120 to 125 teaching days in a year. The teaching days for the 2nd year and the 3rd year are even lesser - not more than 100 days. There are many instances where there are shortages of teachers in the departments and therefore with so few teaching days on one hand and shortages of teachers on the other, teachers do not get the scope to complete the syllabus and tend to run through the syllabus selecting the probable questions for the examinations and preparing the students for examination by giving notes resulting in poor quality of teaching-learning.

Students in apprehension of lost classes, irregular classes and syllabus remaining incomplete start depending on tutored based teaching which generally encourages rote learning and reduces their propensity to think. As students depends on private tutors their propensity to attend the classes decreases. It is generally observed that although students attend classes during their 1st year hardly bother to attend classes during their 2nd year and 3rd year.

It is further observed that students - who are regularly irregular in their classes - pass their exam and HEIs and the teachers remain satisfied with such high pass percentage.

The question that becomes important therefore - what is the purpose of higher education institutes if students pass without classroom teaching? Is it not true that the teachers are becoming redundant if such scenario prevails and looms large HEIs in general.

Objective of Larger Purpose in Higher Education

A serious introspection is therefore needed and a solution is to be obtained so that the following objectives are fulfilled

a) An academic calendar can be built by the HEIs where there are 30 weeks of direct teaching (in a six day week) or 36 weeks of direct teaching (in a five day week)

b) Teachers remains present in the college for 180 teaching days for direct classroom teaching

c) Students attend classes regularly and tend to depend more on classroom teaching for their preparation towards formative assessment as well as summative assessment

d) Students learn the entire curriculum (and not a selective portion of the syllabus probable for the university examination) and prepare for horizontal and vertical progression

e) Higher Education enables the learners to apply their mind and think on problems to even beyond the narrow domain of the university syllabus - an essential pre-requisite in workplace and life.

Design of an Academic Calendar that Accommodates 180 Teaching Days

Concerted efforts are to be made towards maximizing the effective teaching days for which certain reforms are also necessary as proposed below

1. If 30 teaching weeks are to be complied with than nine clear months are to be observed as teaching months so that at least 180 teaching days becomes feasible.

2. In view of the same let the Academic Calendar for the colleges look like as follows:

Jul Aug Sept	Nov Dec Jan	Feb Mar Apr	May June
1st Trimester	2nd Trimester	3rd Trimester	Exam, evaluation, admission
Classes for 1st year 2nd year and 3rd year	Classes for 1st year 2nd year and 3rd year	**Feb March** - Classes for 1st year 2nd year and 3rd year April - Classes for 1st year 2nd year and Part III examination	**May** - Part I and Part II examination **June** - Publication of results and admission to the 1st year, 2nd and 3rd year

3. Actualization of the above academic calendar requires Higher Secondary Examination results to be published before May 31 so that admissions to the 1st year in colleges are complete within June 30, and Part I classes starts from July. The recent efforts of online admission are a good step towards

facilitating completion of admission within three weeks time.

4. Furthermore the Part III examinations are required to be completed within April 20 and their results are published within May 31 so that the Part III pass outs get opportunities to progress to higher studies at the all India level.

5. This further requires Part I and Part II examinations to be completed within the month of May and their results to be published with June so that subsequent admission to the 2nd and 3rd year significant gets completed by June 30.

6. The conduct of examination, evaluation, publication of results and subsequent admission can be completed within two months subject to two changes / reforms
   a) evaluation reforms
   b) use of technology

7. It is also necessary to do away with the selections test and the mid term tests but are to be replaced by a system of continuous internal assessment from July to April

8. Students election in all colleges be held during the winter recess i.e. during the period Dec 26 to Jan 31

Suggested Evaluation Reforms and Use of Technology

a) At the commencement of the academic session departments publish a departmental academic calendar, clearly specifying the schedule of **month-end internal assessments** so that nine internal assessments in nine months are pre-scheduled and every student would be required to appear in all such test compulsorily failing which the student would not be sent up for final university examinations for which change in regulation needed

b) The curriculum for the month end internal assessment would be the portion of the syllabus completed during the month and the teachers would provide the students with learning outcomes, lesson plans, brief course content of the lessons including enrichment materials in the classroom. These changes if introduced would benefit
   i. HEIs - fulfilling NAAC criteria of teaching-learning evaluation as well as students support
   ii. Teachers - fulfilling the requirements of API and PBAS
   iii. Students - reducing their dependence on private tutors and increasing their class attendance

c) The **month-end internal assessment** would comprise of the following pattern
   i. One essay type questions of 20 marks
   ii. Thirty questions of MCQ type of 1 mark each - of which
      1. 10 questions to assess knowledge of simple facts and figures
      2. 10 questions to assess higher order thinking abilities
      3. 10 questions to assess the understanding of concepts

d) Teachers are trained to make use of OMR technology to evaluate the MCQ type assessment while the essay type question be evaluated by teachers.

e) In view of the nine **month-end internal assessment** the total 100 marks examination system may now be seen as follows
   i. 45 % marks weightage carry forward from the average marks obtained from the nine **month-end internal assessment**
   ii. 05 % marks weightage carry forward from attendance of students as follows
      a) 1 mark if attendance is below 20 percent

b) 2 marks if attendance is in between 20 to 40 percent

c) 3 marks if attendance is in between 40 to 60 percent

d) 4 marks if attendance is in between 60 to 80 percent

e) 5 marks if attendance is in between 80 to 100 percent

iii. 50 % marks weightage from the final examination as follows

1. One essay type question of 20 marks - to be answered in a given writing space of 4 pages of an A4 size paper and would be evaluated by examiners and scrutinized on one single day in a centrally placed location in the university/ otherwise.

2. Thirty questions of MCQ type of 1 mark each - to be evaluated with OMR technology without any scrutiny and review

f) As final examination is of 50 marks its duration would be of 2 hours which means Part I Part II examinations can be held simultaneously and hence the honours papers can be completed in 5 days time while the general papers can be completed in another 15 - 18 days. In other words Part I Part II exams can be completed within the 3rd week of May.

g) It is to be noted that if a student attends 90 percent classes throughout the year earning 5 marks as grace and score at least 25 in the **month-end internal assessment** out of 45, then the students get the pass marks of 30 even before appearing for the final exam and thus tendency of adopting unfair means during university examinations can be minimized.

h) If Part I and Part II examinations are completed within May 3rd week and evaluations are completed within June 2nd

week than admission to 2nd and 3rd year can be completed with the help of SMS gateway and appropriate software for admission to the 2nd and 3rd year.

Benefits

a) The above system would provide impetus to a student for being regular to classes and since marks scored in these exams are part of the final exams it would compel the students to attend all such exams, to score good marks, to prepare for such exams and to attend the classes based on which the exam will be taken.

b) The teacher would frame a questionnaire that would cover the contents of the monthly module. The questions are to be designed in a manner such that students would be evaluated in terms of factual knowledge, conceptual knowledge and higher order thinking abilities

c) The students are free to take private tuition but students would soon feel that in order to score good marks in these exams they will have to attend these classes.

d) The private tutors too will have to change their teaching learning process [providing notes and suggestions] as students will rely on them only when they can tutor the students in the manner in which they will be evaluated in the modular unit tests.

e) The efficacy of teachers is to be judged in their ability to design questions that would compel the students to come back to the class room - here lies the question of expertise of teachers to improve the quality of teaching-learning evaluation. Training of teachers may be necessary for bringing uniformity in the standard of questions designed by the teachers across different colleges

f) Students getting adapted to such pattern of exams will find them prepared for competitive

examinations both at the state level as well as the national level

Plan of Action for Change Management

Plan 1. The government should set up a State Quality Assurance Council (SQAC) **at the apex.**

Plan 2. The SQAC would introduce certain teaching-learning evaluation reforms for bringing changes in the system of teaching-learning evaluation such that students are required to make more independent thinking and thereby develop thinking abilities that would help them to be analytical and problem solvers in their workplaces. For this the assessment system is to be changed radically — introducing multiple choice questions in evaluation — thus discouraging rote learning and suggestive learning.

Plan 3. The SQAC in consonance with all universities in the state is to bring **changes in their academic calendar** to fulfill the purposes of increasing the effective teaching days to 180 in a year (at present

125 days max)

Plan 4. The SQAC is to focus on training of teachers and empowering them to

    a. Make use of OMR

    b. Prepare enrichment course materials

    c. MCQ type question database

       i. Factual

       ii. Conceptual and Analytical

       iii. Higher order thinking skills

Plan 5. The SQAC may also build a repository of study materials, question banks, to be contributed by the teachers and viewed by the students and the repository may be used teachers to frame the question papers for the month end internal assessment

The Suggested Reforms in the Light of the Quality Enhancement in Higher Education

If one glides through the NAAC requirements it would be evident that the above changes are in conformity with what the assessment parameters of NAAC as enumerated below:

Criterion	Core Indicator	NAAC Questions
Curricular Aspect	Curriculum Planning and Implementation	Does the institution develop and deploy action plans for effective implementation of the curriculum? What type of support (procedural and practical) do the teachers receive (from the University and/or institution) for effectively translating the curriculum and improving teaching practices? Specify the initiatives taken up or contribution made by the institution for effective curriculum delivery and transaction on the Curriculum provided by the affiliating University or other statutory agency. How does institution analyze/ensure that the stated objectives of curriculum are achieved in the course of implementation?
Curricular Aspect	Curriculum enrichment	Describe the efforts made by the institution to supplement the University's Curriculum to ensure that the academic programme and Institution's goals and objectives are integrated? What are the efforts made by the institution to enrich and organize the curriculum to enhance the experiences of the students so as to cope with the needs of the dynamic employment market? How does the institution monitor and evaluate the quality of its enrichment programmes?

Teaching Learning Evaluation	Teaching-learning process	How does the college plan and organize the teaching, learning and evaluation schedules? How does the institution nurture critical thinking, creativity and scientific temper among the students to transform them into life-long learners and innovators? What are the technologies and facilities available and used by the faculty for effective teaching? Provide details of innovative teaching approaches/methods adopted by the faculty during the last four years? What are the efforts made by the institution to encourage the faulty to adopt new and innovative approaches and the impact of such innovative practices on student learning? Does the institution face any challenges in completing the curriculum within the planned time frame and calendar?
Teaching Learning Evaluation	Evaluation Process and Reforms	How does the institution ensure that the stakeholders of the institution especially students and faculty are aware of the evaluation processes? What are the major evaluation reforms of the university that the institution has adopted and what are the reforms initiated by the institution on its own? How does the institution ensure effective implementation of the evaluation reforms of the university and those initiated by the institution on its own? Provide details on the formative and summative evaluation approaches adopted to measure student achievement. Enumerate on how the institution monitors and communicates the progress and performance of students through the duration of the course/programme? Detail on the significant improvements made in ensuring rigor and transparency in the internal assessment during the last four years and weightage assigned for the overall development of students Does the institution and individual teachers use assessment/evaluation as an indicator for evaluating student performance, achievement of learning objectives and planning?
Students Support & Progression	Students Mentoring and Support	Enumerating on the support and guidance provided to the students in preparing for the competitive exams., give details on the number of students appeared and qualified in various competitive exams such as UGC-CSIR-NET,UGC-NET, SLET, ATE, CAT, GRE, TOFEL, GMAT, State Services, Defense, Civil Services etc.
Students Support & Progression	Students Progression	How does the institution facilitate student progression to higher level of education and/or towards employment? Enumerate the special support provided to students who are at the risk of failure and drop out.

If NAAC is mandatory and if funding to HEIs are related to accreditation than the reforms suggested above should be accepted unless a better solution to enhance the number of teaching days could be conceived and delivered.

References

India, University Grants Commission (2010). UGC Regulations on Measures for Maintenance of Standards in Higher Education. Retrieved from www.ugc.ac.in on 12.12.2015

West Bengal, Department of Higher Education. (2012). Applicability of the terms and conditions towards Redesignation & Career Advancement Scheme for the teachers, librarians, physical instructors of the Government aided Colleges including erstwhile sponsored colleges in West Bengal. Retrieved from https://wbxpress.com/wp-content/uploads/2013/01/CAS_State_aided_College.pdf on 31.12.2015

India, National Assessment and Accreditation Council (2010). Guidelines for assessment and accreditation Retrieved from http://mhrd.gov.in/sites/upload_files/mhrd/files/documentreports/Manual_for_Universities_23012013.pdf on 12.12.2015

"The Medium is the Message": The Prospects and Challenges of Mobile Learning in Contemporary Educational Initiatives

Kinshuk Nandi

Abstract

In 1964, Canadian communication and media theorist Marshall McLuhan *had coined the phrase "the medium is the message", implying that the form of a medium embeds itself in the* message, *creating a symbiotic relationship and that the medium itself should be the focus of study. Half a century later, that phrase is strangely relevant in connection with the ubiquitous popularity of mobile telephones and the changing patterns of our reading habits. UNESCO feels that the internet is helping to level the playing field in addressing a fundamental challenge — how to bring text to the millions of people. Surveys conducted across the developing countries of the world, including India, highlight that people seem to enjoy reading more often on mobile devices. There is a growing consensus hunch that most ICT based education was articulated in a 'pre-mobile' era. Dissemination of information and reading material through mobile application (Apps) and online learning can be just one of the advantages. Yet, in the technology-rich era, what is missing is not the devices, but a lack of content development. A recent study commissioned by FICCI projects that the Indian higher education system has undergone massive expansion in enrollment with the extensive use of ICT tools. Recent media reports also suggested that India has become the world's second largest smart phone market. So the potential for 'm-learning' has a valid reference point in the Indian context..The present paper would try to juxtapose the opportunities and challenges associated with 'm-learning', so as to facilitate its wider adoption.*

Assistant Professor of Political Science; Barasat Government College, West Bengal; E-mail: kinshuk.nandi@gmail.com

Introduction

The effectiveness and relevance of information and communication technology (ICT) in various applications relating to higher education has been highlighted time and again. Globally, ICT is recognized as an enabler of future lifelong learning and life-wide learning by allowing people to learn anytime, anywhere, anyway and with any content they may need. Many of the ICT applications are in vogue in several educational institutes of repute and are being constantly revised and upgraded in scale to incorporate fields that were hitherto untouched. Another facet of ICT is the creation of 'cyber-learning spaces', which provides an interface between teachers and students, contributing to sharing of quality teaching and learning resources and re-construction of knowledge. So electronically supported learning or 'e-learning' is a well-known phenomenon to the current generation of educators and learners. However, due to the institution-centric approach of such pedagogical ventures, 'e-learning' has remained confined to those institutions which have the capability to install the requisite infrastructure and the financial strength to afford, sustain and periodically upgrade the same.

Studies by UNESCO within the framework of 'Working Paper Series on Mobile Learning (WPS-ML)' suggest that" technological aspects of these 'e-learning' ventures are part of a top-down approach and hence these are scarce, expensive and fragile and in most developing countries only government and large institutions could afford it. Under these models

learners typically spent less than 45 minutes per week in front of a PC in a school computer lab."[1]Similar reports again project that application of the ICT of contemporary times to a twentieth-century education system is not going to yield contemporary skills among the learners and the augmentation of physical infrastructure relating to information technology (IT) only. UNESCO observes that "core of ICT is not infrastructure, but rather deeper integration of these technologies in teaching and learning and systematic innovation."[2] In any case, artificial barriers to content in terms of language, affordability, copyright and cultural relevance is not to be overcome easily by the present methods of deploying ICT mechanisms. It is here that an alternative approach of individualized learning, as opposed to institutionalized learning is gaining momentum globally as we witness rapid expansion of mobile phone density and the development of associated technologies. Mobile learning or 'm-learning' has become a new avenue for democratization of educational resources and for bringing entirely novel pedagogical concepts.

Objectives and Methodology

Therefore from the above discussion the main objectives of the paper are to explore the advantages and core issues related to 'm-learning' and would seek to search a feasibility of adopting the approach in the Indian context.

The **Methodology** involves secondary information and data from various sources and the paper is structured in the following way: Section II outlines the issues associated with the broad definition of mobile learning, while section III traces the trends and advantages of mobile learning. In section IV the challenges facing the idea of 'm-learning' has been discussed, while section V is devoted to the ideas in

Indian context.

Discussion and Analysis
Defining 'm-learning'; the changing contexts and the issues

The debates and discussions surrounding mobile learning or 'm-learning' is not new, there is a sense of fluidity in the definition of the phenomenon, perhaps due to the ever-changing technological landscape. In order to arrive at a definition of mobile learning, proper definition of 'mobile device' should be provided first. UNESCO chooses to embrace a broad definition, "They are digital, easily portable, usually owned and controlled by an individual rather than an institution can access the internet, have multimedia capabilities and can facilitate a large number of tasks, particularly those related to communication."[3]Collectively, mobile devices are the most ubiquitous medium of ICT in history. The 2015 GSM Association report indicates that a total of 3.6 billion unique mobile subscribers had been identified by the end of 2014, with an additional one billion subscribers expected by 2020. However, mere possession of a mobile device or a smart phone does not ensure digital literacy rate and so the theoretical conception behind 'mobile learning' should be looked thoroughly.

Traxler's (2007) oft-quoted study notes that "mobile learning is essentially personal, contextual, and situated; this means it is 'noisy' ... defining mobile learning can emphasized those unique attributes that position it within informal learning, rather than formal."[4]On the other hand, he also acknowledged that mobile devices are now radically transforming societal notions of discourse and knowledge and as a

---

[1]'Mobile Learning and Policies: Key Issues to Consider': UNESCO WPS-ML, 2012.
[2]Ibid.

[3]'UNESCO policy guidelines for mobile learning': UNESCO PG-ML, 2013.
[4]Traxler, John. 'Defining, Discussing and Evaluating Mobile Learning: The moving finger writes and having writ...'The International Review of Research in Open and Distributed Learning, [S.l.], v. 8, n. 2, Jun. 2007. ISSN 1492-3831.

result the established notions of formal education are being challenged dynamically. Nearly a decade later, UNESCO defines 'mobile learning' in a contrasting light stating that it is marked by "use of mobile technology, either alone or in combination with other information and communication technology (ICT), to enable learning anytime and anywhere… people can use mobile devices to access educational resources, connect with others, or create content, both inside and outside classrooms."[5] The focus of 'mobile learning' is more on the aspect of 'mobility of learner' or 'mobility of the learning processes and also on its unique affordability than on the specific technology. Mobility does not mean just physical mobility but the scope to overcome physical constraints through access to people and digital learning resources. Another issue which 'm-learning' relates to is supporting broad educational goals such as effective education administration and information management.

In this regard Traxler (2007) also observes that mobile learning is not about 'mobile' or about 'learning' as previously understood but 'mobile learning' "is emerging as an entirely new and distinct concept alongside the 'mobile workforce' and the connected society."[6] Indeed, mobile devices themselves being the products of various social and economic forces and mobile technologies being ubiquitous in modern societies, they are changing the nature of knowledge and discourse in societies. This, in turn have a profound impact both on the nature of formal and informal learning and alters the ways that learning can be delivered. One aspect is that both a feature and a force-multiplier in the growth of 'm-learning' is the distinctly affordable hardware which is easily self-procured than the computers. Currently there are three widely practiced models for the hardware needed for mobile learning:

- Governments or other institutions provide devices directly to learners;
- Learners supply their own devices, commonly referred as 'bring your own device' or BYOD
- Governments and institutions share provisioning responsibilities with learners.

The BYOD model is attractive because it is inexpensive as the price of the devices and the connectivity plans are usually shouldered by the end-users, who happen to be the potential leaners as well. As a result, BYOD projects can be implemented quickly in areas where most people have mobile devices. However, UNECSO warns that BYOD has serious limitations if it fails to accommodate learners who do not already own mobile hardware.

Specific Trends & Advantages of 'mobile learning'

Oliver (2009) notes that fields such as medicine, tourism, travel, business, law, banking, engineering and architecture, have been impacted enormously by ICT across the past two or three decades at the same time he observed that lack of similar influence of ICT in the educational sector points to the far less IT-oriented changes in education as compared to the other fields. However, such scenario can change dramatically if 'mobile learning' can be encouraged properly. UNESCO, in partnership with Nokia and World reader, developed one-of-its-kind survey to learn about the habits, preferences and attitudes of mobile readers. The survey was completed by over 4,000 people in seven countries (Ethiopia, Ghana, India, Kenya, Nigeria, Pakistan and Zimbabwe) and supported by qualitative interviews with numerous respondents.

The findings relating to mobile reading are expectedly startling. They are as follows:-

---

[5] See 4.
[6] See 5.

[7] 'Reading in the mobile era: A study of mobile reading in developing countries'; UNESCO Report, 2014.

- The demographics of mobile readers generally emphasized on the mobile phone ownership pattern in developing countries. Male users dominate in numbers and this is not surprising. However, women appear to be using mobile devices as a portal to reading material, in spite of their lower rates of mobile phone ownership.
- Female mobile readers spend significantly more time reading per month than males. But older age group people are less likely to read on their phones.
- Results indicate that, overwhelmingly, convenience is the primary reason for which people read on mobile devices. Popular secondary reasons include affordability, a preference for mobile reading over paper books and to a lesser extent lack of access to paper books and stories.
- Almost one-third of mobile readers are either parents or caregivers of young children and one-fifth of mobile readers are teachers.
- The largest obstacle to mobile reading is not cost but content, followed closely by connectivity issues. There appears to be a demand for mobile reading platforms with text in local languages, level-appropriate text and text by local authors.

Apparently the findings validate the instinctive feeling that mobile reading is often as ubiquitous as those mobile devices themselves. UNESCO has found that very few education systems use mobile technologies to support the work and upgradation of teachers, even though this is often a practical and cost-effective method. Since government can expand the educational opportunities by expanding and emphasizing the technology people already own. UNESCO Policy Guidelines on Mobile Learning also mentions that "banning mobile technologies in formal system of education does not prevent young people from using them. Rather, schools should increase student awareness about using mobile devices safely and avoiding the inherent hazards".[8]

In this context, the generic advantages of such a widespread phenomenon need to be looked into carefully. Some of these advantages or virtues stems from the fields of 'e-learning' itself, since the boundary between the two is often permeable. Investment in technology has created the structured and interactive nature of 'e-learning'. As and when the market forces drive improvements in interface design, processor speed, battery life and connectivity bandwidth of mobile technology also will accrue the similar benefits to the 'm-learning as well'.

Studies related to the correlation between wealth and book-access have observed that public libraries in low-income group areas remains open less regularly and for fewer hours than libraries in middle income group communities. This can be seen in nearly every country on earth and cuts across geographic lines and also affects the reading habits of students hailing from low-income group areas. Mobile learning can overcome this obstacle if the right ecosystem can provide cloud-based access of educational resources to the end-users. The world faces a fundamental challenge that how to bring text to the millions of people. Fortunately, the internet is helping to level the playing field. It has accelerated the spread of information and democratized access to resources. For example, many blue chip tech companies are supporting the initiatives of Khan Academy, a non-profit organization popular for producing short lecture videos with transcript to educate millions of interested students on a variety of subjects, through their website as well as mobile apps. One added advantage of such ventures is the effect of co-creation of knowledge, with active participation of both the educators and learners. When learners utilize mobile

---

[8] See 4.

technology to complete passive or tasks such as listening to a lecture or memorizing information at home, they have more time to discuss ideas, share alternative interpretations, work collaboratively and participate in laboratory activities. Commonly shared resource or wikis as they are popularly called are an invention of this generation.

There is a close link between poverty and disability and much of that problem arises due to the inability of the differently abled to timely access to proper educational resources. However, ICT and m-learning have the potential to make significant improvements in the lives of the disabled persons, even with the existing popular technologies like text-enlargement, voice-transcription, location-aware and text-to-speech technologies, mobile devices can dramatically improve the nature of personalized learning.

UNESCO survey indicates that though women possess mobiles in a lesser degree, once they are exposed to mobile reading, they tend to do it a lot. To put that into perspective, of the 774 million adults in the world who cannot read or write, 64 percent of them are women. So mobile learning may reduce that figure significantly. Mobile devices can also help to move teacher training away from homogenous and centralized institutions and towards the classrooms and school sites where learners and educators come together.

Challenges Facing the Adoption of 'm-learning'

While 'm-learning' is a relatively new phenomenon, with certain obvious potentials to provide access to educational resources on a personalized level, it should not be considered as a panacea to all the problems currently plaguing the delivery of education. There are certain challenges that need to be overcome to pave the way for its wider adoption in the formal contours of education. Some of these challenges are systemic, which can be properly dealt through policy interventions, while some other challenges arise due to the fluid nature of 'm-

learning', and even some other challenges arise due to conflicting interpretations of the broad principles that govern the internet.

Reports of GSM Association strongly point to the data that global penetration of smart phone has increased rapidly over the course of last five-six years. Naturally, the policy mechanisms of pedagogical ventures have not been attended to the idea of 'm-learning'. Qingdao Declaration (2015) of UNESCO mentions that 'negative social attitudes' regarding the educational potentials of mobile technology constitutes the most immediate barrier to the widespread embrace of mobile learning. Broadly speaking, people tend to view mobile devices and mobile phones as portals to entertainment only. So long as such mindsets exist, it will be difficult to integrate 'm-learning' with formal education.

Traxler (2007) observes that there are a variety of problems associated with evaluating mobile learning. Perhaps the most fundamental is the problem of defining the characteristics of a 'good' or acceptable evaluation process. The fluidity and ever-changing informal nature of 'm-learning' has affected quality assurance to some extent. As a result, recognition of online qualifications remains a challenge even for institutions that are trying to provide qualification-based training. The government of some countries is not yet ready to recognize online qualifications or certifications.

It is evident that in the technology-rich era, lack of content development is more serious an issue than the availability of devices, another challenge is present in terms of the proper dissemination of content as well. Fierce competition between major device manufacturers and software companies and a fast pace of innovation, mean that literally thousands of different models exist, running a number of different operating systems (OS). So the real test is to create contents that are device-agnostic as well as OS-agnostic. Otherwise scenarios may arise where

learners with superior devices and data plans can outperform those with inferior devices and plans. Immediate solution may not be offered, since market leadership of different OS ecosystems keep on changing over time and the most popular OS platforms are picked to ensure the viability of any project. For example, Barasat Government College in West Bengal has built its free Android App to tap the potential of mobile platforms, knowing fully well that there are few students who own non-Android devices. Yet the project have to begin on the Android ecosystem because it is inexpensive and popular, which in turn would make it widely acceptable and a viable one.

Taxation on mobile devices and usage as well as monopolies in the telecommunications sector are key reasons for prohibitive usage costs of mobiles. Subsidizing data tariff for educational purposes, whether directly or in partnership with mobile network operators can be a solution, but debates surrounding the principle of 'net-neutrality' has ensured that such efforts are not easy to implement. In the Indian context, 'Free Basics' initiative of Facebook or 'Airtel Zero' platform of Airtelwere such polarizingenterprises, which offered certain contents on the internet against nominal or zero data tariff. However, the Telecom regulatory Authority of India (TRAI) has very recently prohibited such efforts on the logic of maintenance of net-neutrality. In its 'Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016', the regulator ruled that "No service provider shall offer or charge discriminatory tariffs for data services on the basis of content".[9] It is said that the prohibition was necessary to keep the internet open and non-discriminatory. While the reactions on such ruling are mixed and often polarizing, the key fact from this episode is that broader principles governing the internet make 'm-

---

[9]*TRAI rules in favour of net neutrality*; The Hindu, 8th February, 2016.

learning' a bit difficult task.

Among other barriers against successful introduction of mobile-learning system are limited opportunities for teachers to learn how to incorporate mobile technologies into their classroom practices can be mentioned. Empowering teachers to rethink teaching and learning remains a main challenge. In fact extensive use of technologies contains a larger risk of widening the existing digital divide, due to the differences in adequacy of ICT skills and information literacy among students and teachers. Here the mobile phone gender gap is a matter of definite concern. Though it is a symptom of broader gender inequalities, UNESCO too opines that policy-makers should be mindful to promote gender equality for 'm-learning' and women's lack of possession of mobile devices should be addressed.

There are certain other overarching issue that requires national policy interventions, such as concerns about privacy and online safety, management of e-waste, support for open licenses etc. These are generic issues relating to adoption of ICT based education itself, so the mobile learning ecosystem is not free from such apprehensions. However, Traxler (2007) has identified another more significant obstacle before mobile learning. He argues that the resources and culture of an institution may prevent the incorporation of a learning ecosystem that is perceived as informal (like distance education, mobile education or part-time provision etc.). By resources he meant finance and money, human resources, physical estates, institutional reputation, intellectual property, and expertise. The parameters of culture are marked by the institution's role as a social organization, its practices, values and procedures, the expectations and standards of its staff, students and wider communities, including employers and professional bodies. While it is early yet to completely support or refute such viewpoints, in all practical sense 'm-learning' needs to inculcate

innovative strategies to sustain its base among different stakeholders.

The Indian Context

Even as the GSM Association report of 2015 pertaining to India states that, with half a billion mobile subscriber's Indian market is already the second largest in the world. These figures include data for both the internet-enabled smart phones and the basic featured phones. It is significant to know from recent media reports that now India is also the second biggest smart phone market in the world[10] and is the most competitive market in Asia Pacific where voice-call pricing is already low by international standards. Although traffic for mobile data is growing strongly, operators are handicapped in their efforts to monetize this by the high cost of spectrum."The mobile ecosystem directly provided employment to 2.2 million people in India in 2014, of which 300,000were in the formal economy and 1.9 million in the informal sector."[11]

It is thus evident that India is sitting on a threshold of mobile-based solutions in several fields and as we progress, the intensity of mobile technologies are only going to increase in a deeply connected network. India is not in a position to ignore the potential of this opportunity, if it wishes to supply adequately skilled manpower to the global labor force. So far as the educational sector in concerned, either the educational policies need to reflect an ICT-friendly and mobile-friendly approach and take the risk of potentially increasing the digital divide in an already unequal society; or the policies stick with their ambivalence towards ICT and mobile learning while other countries enjoy the openings.

The ambitious Digital India initiative looks to empower one billion subscribers by providing internet access to all and has broad support in the

telecom industry. However, the GSMA Report (2015) states that till date, there has been too much emphasis on employing fiber-optics and unlicensed spectrum, rather than harnessing the potential of mobile technologies. It is true that there is a large urban-rural divide in terms of penetration of mobile internet. Recent surveys indicate that 53% of urban areas have mobile internet connectivity, as compared to only 9% mobile internet in rural areas.[12] While the first hurdle is to eclipse this skewed internet penetration, the policies should also look to harness the mobile ecosystem vigorously, developing processes and contents. The traditional spaces of learning are producing a workforce whose quality is not satisfactory in the eyes of the employers and the industry. The ever changing demands and patterns of the global market cannot be expected to reflect in the curricula automatically, therefore, individualized learning spaces need to be curetted to meet the specific requirements, where the workers can acquire the new skills just-in-time. Given the prior experiences of ICT based teaching, 'mobile-learning' at least deserves a chance.

On the one hand, India's telecom policy frameworks have gone to the extent of studying even the feasibility of 'Internet of Things (IoT)' or 'Machine to Machine (M2M) Interface'; while on the other hand India still suffers from a lack of comprehensive pro-mobile educational policies. Oliver (2009) notes that internationally, curricula are starting to emphasize on capabilities and are concerned more with *how* the information will be used rather than with *what* the information is. India's educational strategies should address it.

Suggestions and Concluding Remarks

Google's Eric Schmidt and Richard Cohen have termed the internet as "the world's largest

---

[10] 'India beats US to become world's second largest smartphone market'; Times of India, 3rd February, 2016.
[11] 'The Mobile Economy India, 2015'; GSM Association Report.

[12] 'Only 9% of rural India has access to mobile internet Report'; Times of India, 4th February, 2016.

ungoverned space" and "the largest experiment involving anarchy in history". They have also noted that the "internet is among the few things humans have built that they don't truly understand". Naturally, any internet-based products or services are bound to generate divisive opinions. Unwittingly, many of the negative opinions about internet themselves have a chance to be shared via the digital platform and the internet itself. While due protective measures must be instituted to offset the potential hazards of internet enabled services, there is little logic to not to try a newer platform which offers some newer solutions. Mobile learning may not have the power to substitute the formal structures of learning in near future, but it can at least complements the existing learning methods and offers the scope to accommodate changes in a particular field of study more easily. It also democratizes the opportunities of learning by breaking the glass ceiling. In these contexts, time has come to seriously explore the potentials of this medium.

References

Leveraging Information and Communication Technologies to Achieve the Post-2015 Education Goal; Report of the UNESCO International Conference on ICT and Post-2015 Education. Retrieved from http://www.unesco.org/new/en/unesco/themes/icts/policy/international-conference-on-ict-and-post-2015-education/. Last accessed on 03.02.2016

Reading in the mobile era: A study of mobile reading in developing countries; UNESCO Report. Retrieved fromwww.unesco.org/new/en/unesco/themes/icts/m4ed/mobile-reading/reading-in-the-mobile-era/. Last accessed on 03.02.2016.

UNESCO policy guidelines for mobile learning; Retrieved fromhttp://www.unesco.org/new/en/unesco/themes/icts/m4ed/mobile-learning-resources/unescomobilelearningseries/. Last accessed on 03.02.2016.

Mobile Learning and Policies: Key Issues to Consider; UNESCO Working Paper Series on Mobile Learning (WPS ML). Retrieved fromhttp://www.unesco.org/new/en/unesco/themes/icts/m4ed/mobile-learning-resources/unescomobilelearningseries/. Last accessed on 03.02.2016.

Higher Education in India: Vision 2030; An Ernst and Young Knowledge paper on the occasion of the FICCI Higher Education Summit 2013. Retrieved from http://www.ey.com/Publication/vwLUAssets/Higher-education-in-India-Vision-2030/$FILE/EY-Higher-education-in-India-Vision-2030.pdf. Last accessed on 03.02.2016

The Mobile Economy, 2015, GSM Association Report, retrieved from http://www.gsmamobileeconomy.com/GSMA_Global_Mobile_Economy_Report_2015.pdf. Last accessed on 03.02.2016.

The Mobile Economy India, 2015, GSM Association Report, retrieved from https://gsmaintelligence.com/research/2015/11/the-mobile-economy-india-2015/532/. Last accessed on 03.02.2016.

Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016, Telecom Regulatory Authority of India Notification. Retrieved from http://www.trai.gov.in/WriteReadData/WhatsNew/Documents/Regulation_Data_Service.pdf. Last Accessed on 08.02.2016.

Oliver, Ron. The role of ICT in higher education for the 21st century: ICT as a change agent for education; Research-gate Publications, Retrieved from https://www.researchgate.net/publication/228920282_The_role_of_ICT_in_higher_education_for_the_21st_century_ICT_as_a_change_agent_for_education.Last accessed on 02.02.2016.

Schmidt, E., & Cohen, J. (2013). 'The new digital age: Reshaping the future of people, nations and business'. London: John Murray.

Traxler, John. 'Defining, Discussing and Evaluating Mobile Learning: The moving finger writes and having writ...'The International Review of Research in Open and Distributed Learning, [S.l.], v. 8, n. 2, Jun. 2007. ISSN 1492-3831. Available at: http://www.irrodl.org/index.php/irrodl/article/view/346/875. Last accessed on 03.02.2016.

India beats US to become world's second largest smartphone market; Times of India, 3rd February, 2016, retrieved fromtimesofindia.indiatimes.com/tech/tech-news/India-beats-US-to-become-worlds-second-largest-smartphone-market/articleshow/50830481.cms.

Only 9% of rural India has access to mobile internet: Report; Times of India, 4th February, 2016, retrieved fromhttp://timesofindia.indiatimes.com/tech/tech-news/Only-9-of-rural-India-has-access-to-mobile-internet-Report/articleshowprint/50840296.cms

TRAI rules in favour of Net neutrality; The Hindu, 8th February, 2016, retrieved fromhttp://www.thehindu.com/sci-tech/technology/internet/trai-rules-in-favour-of-net-neutrality/article8209455.ece.

Role of Communication Media in Quality Enhancement and Sustenance of Indian Higher Education

Monami Chaudhuri[1], Indrani Sarkar[2]

Abstract

Communication plays a vital role in disseminating knowledge. In our educational system the communication has always been one sided where students play the mere role of listener. Thus to enhance the quality of our education we should change the way of teachers- students communication. For both way communications, communication technology can play a vital role. Involvement from the students will not only involve them more in the education system but it will also demand for true enhancement. Thus, this can result to quality as well as sustenance in education.

The paper highlights the various tools and techniques of modern communication technologies for free flow of information to enhance the quality as well as sustenance of higher education system in India.

*1 Research Scholar, Dept. Of Journalism and Mass Communication, West Bengal State University, Barasat; E-mail:monamichaudhury@gmail.com
2 Guest Lecturer, Dept. Of Journalism and Mass Communication, Rishi Bankim Chandra College, West Bengal; E-mail:indrani.sarkar@hotmail.com*

Introduction

In our country- India, from ancient times, education is considered 'the third eye' of man, which not only gives him insight but also mental strength and equilibrium of material and spiritual life. Various religious scriptures and number of philosophical thought in India too have highlighted the importance of education right from the early days of human civilization and claimed that salvation is attained through obtaining the true knowledge. According to the great monk Swami Vivekananda, "Education can unlock all doors for a progress "A nation advances in proportion to education and intelligence spread among masses" If India is to grow to her full potential as a strong, united, prosperous nation, a nation attuned to the highest and ethical moral values, true to the genius of her cultural and spiritual heritage; it is possible only though transformation and regenerative power of education only-a truly creative endeavor. It can help India to grow into her full potential as a strong united nation with strong moral and cultural values".

Therefore, knowledge has become more powerful an essence of any developed society. It has strategic importance for everyone because it facilitates in modifying and replacing the factors that narrow the social development of any society. Knowledge thus is the foundation of growth. If we want to play strategic role in world at large it is necessary however to view education seriously from its generation, scientific, technical and the structures that facilitate in increasing the capacities and

capabilities on the one hand and traditions and practices which hinders the process of growing into full potential. We cannot thus afford to take a halfhearted gaze at education rather immediate and socio, political and economic actions should be initiated to increase in the ability of 'how-to-do-it'.

Globalization and liberalization as practiced and advocated all over the world has resulted in the perception of higher education as commercial product, with dealings in it being governed by market forces and principles of demand and supply. Though higher education exists to serve the society yet actual developments in world over indicate that education is treated as a commodity that could be traded beyond the national boundaries in the form of service. The reality of liberalization in India has led to a mushrooming of private institutes of higher education, offering multiple vocational courses of suspicious quality. Some even offered degrees of foreign Universities to the innocent customers. This situation has brought about a situation on the one side where markets forces moved by profit and quick profit alone, neglected the task of knowledge generation through the promotion of basic sciences, and quality education. Thus, the normal question arises "Are we maintaining the true quality as desired by our future generation?"

The one who plays the key role in imparting knowledge are teachers thus the previous question leads us to another one, "Are teachers equipped with everything they desire for to impart knowledge?" are we sufficiently equipped with every aspect that can flourish our education system? The answer demoralizes us. There is big NO. We are not well prepared with all the educational tools that can enhance this system. There is more scope for development with newer tools and methods.

Features and Effectiveness of E-learning Tools

The role of technology in the educational sector is increasing at a phenomenal rate and has revolutionized traditional forms of teaching-learning processes. Different types of technological tools have been developed to cater to the diverse backgrounds and demands of learners of higher education. One of the important technological innovations is e-learning which may be described as the application of broadband internet and computers to assist teaching and learning. Many e-learning tools like blogs, wikis, specialized software, etc have become common today. The world today is a complex one with issues and concerns emerging that were absent even a generation ago. One of the significant changes that have taken place is the role of education and the realization that it is indispensable for meeting the challenges and complexities of contemporary life and society. Education has become indispensable not only for its own sake -- for making people literate and knowledgeable, but as a means of empowering them and for the development of society. Without education, the technological revolution that continues unabated would not have been possible in our lives. Just as technology has become an intrinsic part of our lives, it has penetrated all areas of teaching and learning at the HE level. From radio, films, and television, we have entered the computer and the internet age. Computers and their varied and ever changing applications are becoming part of the educational scene today. Computers and internet have brought in an astonishing change in the lives of most people across the world. Communications, messages, visuals, photographs can be exchanged instantaneously from one part of the world to any other. A learner or student who is making use of information technology (IT) through internet is said to be learning electronically or in other words, the computers and internet are contributing to student learning. This, in common parlance, is termed 'e-

learning. E-learning has not only become widespread in USA, Canada and Europe, it is becoming popular in India at the higher education level.

Features of e-learning

In view of the special needs, abilities and backgrounds of learners, e-learning is becoming more and more popular. Some of the main features of e-learning are outlined below:

- Connectivity or networking

The students are spread over large distances and not confined to a classroom with a teacher teaching them as earlier. This technology (computers and broadband internet) allows people spread over large distances to be connected and networked and will have access to both text and visuals materials. Animation is also entering the educational scene apart from its omnipresence in the advertisement world. Moreover, in some situations there are a very large number of students – sometimes of the order of 1,000, as happens in open schooling or distance education programmes and this large number would not fit into a classroom in any case. This technology allows all these students to have access to the material available.

- Flexibility

Again, because of jobs, which students maybe engaged in, students have varied hours of learning – late evenings or early mornings. E-learning can accommodate the needs of such students. Similarly, handicapped or ill students who find it difficult to attend regular classes would also be able to benefit.

- Interactivity and collaboration

Not only is their connectivity between the teacher and the learners, the latter can also be interconnected to themselves for sharing information or for posting comments, etc. There can also be collaboration between different scholars or between teachers and students spread over large distances.

- Virtual Learning Environment (VLE)

In view of the special needs of learners and the scope this technology offers institutions and scholars, a virtual learning environment (VLE) or virtual learning portal (VLP) is often created to enable interested persons or learners to have access to educational material like texts, visuals, quizzes, etc available on it. The VLEs created would of course differ from subject to subject. For example something created by psychologists or architects would differ from that created by engineers or business companies. The VLE or VLP allows access to different types of learners spread over distance and location. For all these reasons, e-learning provides an alternative means of learning which is becoming increasingly popular today. E-learning is being implemented today in various forms and through various tools emails, blogs, wikis, e-portfolios, animation, video links, specialized software, etc. We can create through these tools a learning situation spread over distance and location that is picturesquely termed as a *virtual classroom*. Blogs or individual platforms are increasingly being used by innovative teachers to place educational materials, visuals, exercises, assignments, etc and access made available to select group of persons – students or other learners. This allows comments or questions or answers to quizzes to be put up by students, which are then assessed by the teacher administering the blog. Thus e- learning not only open new scope in higher education but also lead towards quality enhancement and sustenance. If teachers can use this methods this will enrich our education globally and will not bind the classroom in the four walls.

Role of Audio Visual Media in Higher Education

The audio-visual (AV) technology in education has its own importance, which should not be underestimated. There are two reasons for this; one,

learning via AV creates a stimulating and interactive environment, which is more conducive to learning; two, we live in an audio-visual age, which means that having the skills to use AV equipment is integral to future employment prospects. Therefore, exposure to AV technology in education is imperative.

Audiovisual communication breaks down the traditional barriers of written communication to ensure that the audience understands the message easily, resulting in better discussions and education. One of the main benefits of audiovisual media for communication is clarity. Audiovisual input enables both parties to observe facial expressions and gesture, hear tones and inflections in the voice and use both audio and visual cues to clarify each other's meanings and positions. Audio and visual cues, when combined, increase message retention. Presentation software and video conferencing can be effective tools in meetings and lectures because your audience receives and processes the information more effectively than it would with more traditional approaches. Audiovisual education uses the senses of sight and hearing to stimulate and enrich learning experiences.

Music and mnemonics are proven to help students with memorization. Mnemonics are phrases or rhymes that people use to memorize information. For example, the saying, "30 days hath September, April, June, and November" is a mnemonic device. When students learn the song lyrics or mnemonic devices, the information stays with them longer and can improve their performance on tests. . Most classrooms support auditory learners but introducing visual aids offers support for visual and even kinesthetic learners. Some visual aids give students the opportunity to view a visual concept model of information. Students with certain learning disabilities may also benefit from visual media. Students who have disabilities, like dyslexia can access and conceptualize information easily. Visual aids allow teachers to create inclusive classrooms in which all students have access to learning material.

Involving students in creating media encourages **collaboration, accountability, creativity,** and **mastery of ideas and concepts.** Importantly, one does not need a large budget, fancy studio, or advanced degree to create original media that is informative, entertaining, and educational. Thus, audio-visual medium cannot only stimulate a student from mere learner but it will also ask for true involvement in gaining knowledge.

Use of Social Media in Higher Education

In this 21st century in this gadgets and gizmos, students are very much addicted to social media. We often try to find out the negative impact of social media but this is high time we should consider it as an important medium to reach out our students everywhere. This one of the most students friendly medium which attracts students and ask for their deep involvement. This medium does have all the aspects of communication.

Positive sides of social media

- Social media did make the world a smaller place, now we have more information, more knowledge, and have better opportunities to use it.

- Social media improved our ability to absorb information, what would have seemed to be over whelming to someone 20 years ago is normal to us, we have an extreme ease in processing and we are evolving quickly.

- Social media helped students have a better direction of what they want, now they have ease of reaching to mentors in the same industry and people already working in their dream company, and get a taste of what it is

like, which was quite impossible for students 10 years ago.

- Students got closer to art and design, and are exposed continuously to new ideas, and are given a big chance to feed their creativity.
- Talents were discovered faster, students who were good at programming got their name out their easily, student who were good in music, got their videos out and shared leading them to their dreams.

A lot of the students were able to inform public about their issues – using social media which brought awareness and helped solve a lot of problems.

Six Ways to Use Social Media in Higher Education

- Aggregating images and information to share with classmates or with interest groups that cut across courses and institutions
- Gathering and sharing data collected with mobile devices during field work or travel abroad
- Creating a public profile to showcase personal research interests and to connect with a broad audience
- Using Twitter in class to keep students engaged and to get a sense of what students are thinking about during lectures
- Forming student study groups with the use of Google+ Hangouts and other social tools
- Adding social tools to e-textbooks

Thus, we can conclude in spite of having some negative impacts social media can play a very crucial role in higher education.

Conclusion

India is developing but at the very slow pace and the main reason behind this is poor quality in higher education. Thus to become a developed nation,

developing one we must enhance our education system. Therefore, the teachers have to come forward to play their part more effectively, which will be constructive. The above-discussed points will not only enhance quality but will also bring sustenance in higher education. This will give rise to a brighter tomorrow for our future generation.

Reference

Education and Role of Media in Education System;Preeti (B. Ed - 2013-14, CIE, University of Delhi)

Learning through Mass media is a flawless process in Distance Education system; G. PONMENI (Directorate of

Distance Education Kurukshetra University)

Maria Salam; Role of Mass Media in Enhancing Education in Bangladesh

"Role of Media in Distance Education" 2015 by Rabindranath Solomon

Use of Media and Technologies in Open and Distance Education: A Case of Bangladesh Open University; Dr. Mohammad Habibur Rahman(Bangladesh Open University

Role of Teachers in Quality Enhancement and Sustenance

Nilay Karchaudhuri[1], Aparna De[2]

Abstract

Education must effectively empower all people to make responsible both individually and collectively, preparing them for present and future challenges and to commit their active participation in the construction of common future. This publication is geared towards teacher-trainers, and teachers in actions at every level of education. The purposes are: contribute to the integration of education for sustainable development into teaching practices through education initiatives which may be feasible in communities and promote innovative practices to contribute to the making of sustainable societies. The key role for teachers training for this initiative is recognized in the implementation strategy. To begin the process of reorienting teacher education to address sustainability, faculties of education around the world must draw their own thematic guidelines based on descriptions and ideas of sustainability.

1 Assistant Professor of Chemistry, Barrackpore Rastraguru Surendranath College, West Bengal; E Mail: nilaykarchaudhuri@gmail.com
2 Associate Professor of Chemistry, Gokhale Memorial Girls' College, West Bengal

Introduction

"No Teacher is ordinary. Revolution and growth can both be initiated by a Teacher, alone."

The United Nations International Environmental Education programme (1975-1995) first introduced the notion of sustainability in higher education, and the UN is now encouraging all countries to address *Education for Sustainable Development* (ESD) by making 2014-2015 the decade for ESD with an declaration that there has been a common consensus that education has a driving force for the change needed and named the UNESCO as the lead agency to promote the decade. The goal of the decade is to integrate the values of sustainable development into all aspects of education and learning and into every modality of education, whether formal, non-formal, and informal, with a view to encouraging changes in attitude and behavior that will create more sustainable and fairer societies through national, regional and global efforts.

Profession and Professionalism

The terms 'professor' and 'profession' have their etymological roots in the Latin for *profess*. To be a professional or a professor was to profess to be an expert in some skill or field of knowledge whereas professionalism means those strategies rhetoric employed by members of an occupation in seeking to improve status, salary and conditions. It is important to locate conceptions of teacher professionalism in relation to changing historical, social, political contexts because multiple meanings have changed

arna De[2]

owth can
""

onmental
troduced
ion, and
address
SD) by
vith an
isensus
change
gency
is to
into
every
rmal,
es in
nore
mal,

eir
a
an
as
ic
o
t

and developed over time. There is a clear distinction between two terms-professionalism and professionalization. Professionalization includes the attempt to gain professional associated with professions. Whereas professionalism focuses on qualification, acquired capacities, competence required for the successful exercise of an occupation. There are five criteria to cite professionalism-provides an important public service, involvement of theoretically as well as practically grounded expertise, have a distinct ethical dimension, requires a high degree of individual autonomy. Autonomy is considered as an important component of teaching profession. The teachers have the right to choose the methods they thought the best for their students. Autonomy not only functions as a buffer against the pressure on teachers but also means of strengthens them in terms of personal and professional sense. Consequently it has an opposite function of organizational control. Professionalism is enhanced when teacher use excellence as a critical criteria for judging their actions and attitudes. It is obvious that status of teaching is dynamic and this dynamism stems from the political and social changes and results in the shifting of meaning and status of the teaching profession in historical contexts.

Development and Sustenance

Education is a key lever of sustainable development. This is based on a vision of inclusive societies in which all citizens have equitable opportunities to access effective learning. It will develop individual development which on summation to the world at large. It is well established that education is an important catalyst for achieving all developmental goals. With formal education traditionally emphasizing teaching more than learning, education systems have focused on the transfer of information and knowledge from the teacher to learner. Such a teacher dependent education system is also time-location-situation dependent. Recognizing that learning is more diversified and beyond formal education systems through the intensification of digital media, the role of teachers will have to evolve from dispensers of information and knowledge to facilitators and enablers of learning.

Education must effectively empower all people to make responsible both individually and collectively, preparing them for present and future challenges and to commit their active participation in the construction of common future. This publication is geared towards teacher-trainers, and teachers in actions at every level of education. The purposes are: contribute to the integration of education for sustainable development into teaching practices through education initiatives which may be feasible in communities and promote innovative practices to contribute to the making of sustainable societies.

Teachers need to feel good about themselves as well as praise and validate students in order to assist students to be emotionally secure and self-confident, to respect themselves and others, and to take full responsibility for their actions-thus a teacher can be an agent for change toward sustainable development. Young people thrive on praise and validation. Many of them do not receive it at home. When the teacher develops a culture of praise and validation, it makes a big difference not only to the individual students but to the general way that the students relate to the teacher. It is possible even to validate a student who is exhibiting the most inappropriate behavior while still ensuring that the child is held totally responsible for the inappropriate action. Teachers must examine themselves to see if they carry traces of internalized oppression. When they teach, it impacts negatively on the young ones. Teachers face many challenges. There is often the problem of overcrowded classrooms and students exhibiting disruptive behavior. But teachers are powerful agents of changes in the lives of young people. Focusing on the

molding of well adjusted young people whatever the subject matter being taught not only benefits the students, it also makes the job of the teacher easier.

The reorienting of curriculum to address the needs of sustainable development is key to arming young people with the proper knowledge, skills, perspectives and values to pursue lifestyles in a sustainable manner, the special needs teacher is encouraged to use the creative arts to design class projects that provide user friendly and hands-on-access to relevant subject matter that address ESD goals.

Role of Teachers

"Promoting Education, Public Awareness and Training," is one of the fronts with high potential for advancing sustainable development efforts. However, education alone cannot create a sustainable future; teachers must share the responsibility for more sustainable societies through good government, enlightened policy, civic participation, and commitment. The key role for teachers training for this initiative is recognized in the implementation strategy. To begin the process of reorienting teacher education to address sustainability, faculties of education around the world must draw their own thematic guidelines based on descriptions and ideas of sustainability. Although many idealistic descriptions of the conceptual development of sustainability of education exist, faculties of education must decide which themes to emphasize within their curriculums, programs, practices and policies to ensure that teacher education programs fit the environmental, social and economic conditions and goals of their communities, regions and nations. For this reason, it is important to undertake research that considers teacher education for sustainable development. It will be a worthwhile and appropriate addition to the higher education curriculum. Some previous studies have identified teachers' beliefs and

attitudes as barriers (for example-the discipline focused nature of academics, the existing irrelevance of ESD to some disciplines, lack of time in the curriculum) to the implementation of sustainability initiatives in higher education. However these barriers are fairly generic to change initiatives within higher education.

Motivations, teaching style, teachers' perceptions of impact on students' learning, modeling, spirituality, and challenges to teaching about sustainable development are the key factors of a teacher for sustainable development in education. Teachers often have their own theories about education. Teachers act as both subjects and agents of change as they make decisions that reflect their understanding of the practical and conceptual implications of their practice. Teacher's practices draw from their beliefs, assumptions, and the values around them. Teachers create their own meaning of each new reform and each new theory that come to the forefront in educational research.

When curricula are not focused on sustainable development, what role do teachers have in educating students to make environmentally sound decisions? Six areas may be considered for identification of a teachers' role in sustenance. They are learning, modeling, spirituality, motivation, teaching style, teachers' perceptions on empowerment and assessment. Education is one field where changes are to be well thought and implementation has to ensure that the students in the pipeline are not adversely affected and the quick changes are not driven by a specific belief. Quality teaching is the use of pedagogical techniques to produce learning outcomes for students. This technique should ensure that all specific teaching and learning frameworks are consistent with these institution wise frameworks which can define the objectives of learning. Teachers should engage themselves in national, regional and international networks to share best practices in

quality teaching and hold national or regional events giving exposure to institutional achievements on quality teaching. But there are certain challenges for capacity building and development of teachers. Teachers are more engaged in curriculum designing, project based learning, peer and group assessment, fund raising and regional networking . conventional class teaching, multidisciplinary collaborations, international programs, involvement of new technologies adding further complexity to teaching task. Some institutions engaged experienced practitioners from the corporate world their expertise are limited and short lived than faculty with extensive teaching experience. Many institutions have provided professional development to faculty but it went in vein. So it has to be ensuring that all initiatives to foster quality teaching involve not only the teachers themselves but also heads of the institution also. It is unfortunate that though teachers make the highest impact on quality in the classroom and they are at the heart of education it is certain there are very little effort for teacher development. A teaching mentor who is able to inspire and motivate the young ones should be engaged for initial training to newly recruited teachers. Head of the institutions should identify champions of teaching excellence and cite their cause of excellence wherever possible.

Conclusion

There are certain personal competencies like sound subject knowledge, communication skills, ability to relate to individual students, self management skills, organizational skills, teamwork skills, research skills, class room management skill can make a difference to the quality and effectiveness of teaching. Teacher education curricula in our country need to be developed to develop this type of competency which will definitely improve the quality and sustenance of education in our country.

At the end of the day, good teaching is about having fun, experiencing pleasure and intrinsic rewards…..a sudden smile cracking across a face signaling learning happening……

References

Liu.J., (2009), Education for Sustainable Development in Teacher Education, Asian school Science, 5(5), 46-49.

Baggini, J., (2005), Education Review, 18(2), 5-11.

Friedman, I.A., (1999), Educational and Psychological Measurement, 57-76.

Hilferty, F., (2008), The Australian Educational Researcher , 35(3), 53-70.

Demirkasimoglu, N., (2010), Procedia Social Social and Behavioral Sciences, 2047-2051.

Inter-departmental Seminars: Best Quality Practice at Dinhata College, West Bengal

Surya Narayan Ray

Abstract

The role of teachers in ensuring and sustaining quality in any educational institution is very important. Likewise at Dinhata College, the sole general degree college of the Dinhata sub-division of the Cooch Behar district of West Bengal, the teachers have embarked on a drive for quality enhancement by adopting the best practice of promoting quality culture through organising many inter-departmental seminars at the college premises. In fact, during the last few months of 2015, as many as 17 inter-departmental seminars on various inter-disciplinary topics were staged by different departments. Even during the puja holidays of 2015, many teachers on various days voluntarily and spontaneously attended the college, in their enduring strive for attaining quality. Keeping this in the background, the present paper attempts to focus on the best practice of holding inter-departmental seminars at the college and their role in enhancing quality teaching-learning environment.

Introduction: Importance of NAAC and Best Practices

'We must recall humanity to those moral roots from which both order and freedom spring'
— Sarvepalli Radhakrishnan

After sixty decades of planned development of higher education in India, India has still not been able to achieve the lofty ideals set forth by the University Education Commission of 1948-49 (Radhakrishnan Commission) and the Education Commission of 1964-66 (Kothari Commission). The example of the medium of instruction in higher education institutions can be cited, which was probably the point on which there was the most difference of opinion in the 10 member Radhakrishnan Commission (Jayapalan 2005). Indians have still not been able to get the fullest benefit of higher education as english has still not been replaced by some other Indian language as the medium of instruction. The government's plan for Higher Education rests on the 3 Es – Expansion, Equity and Excellence. Yet, it was seen that although substantial progress was made under the 11th Five Year Plan (2007-2011), particularly in the creation of new institutions and driving significant expansion which have moved the Indian higher education from an elite to a mass system, 46.5% of the 11th Five year Plan's budget for higher and vocational education lay unspent at the end of the five-year period (British Council, 2014). Moreover, 'quantitative expansion' has not always led to qualitative enhancement', as observed by the former Vice-Chancellor of University of Madras, S. P. Thyagarajan (2013).

Assistant Professor of Commerce & Joint Convener, NAAC, Dinhata College, West Bengal; E Mail: surya_tqm@rediffmail.com

to address this mismatch between expansion and quality of employable, value-inculcated graduates and to bridge the quality gap, the 12th Five Year Plan (2012-17) has rung in important changes in the higher education system with a multi-dimensional reforms package to regulate and promote quality enhancement and sustenance of teaching and learning in higher educational institutions.

To regulate and promote the quality and excellence in higher educational institutions, the University Grants Commission (UGC) has made distinction between quality and excellence in conceptual terms. And therefore, separate indicators are used to measure quality and excellence (Prasad, 2005). The UGC's measures for excellence are in the nature of addition to the measures of the quality. The UGC has set up National Assessment and Accreditation Council (NAAC) to assess the quality of higher education institutions, which uses fairly expanded criteria of quality for universities and colleges in the country. Assessment and Accreditation (A&A) are the instruments to achieve total quality and the beginning of the process of acquiring excellence in higher education. Basically, assessment is the process through which we can identify the strengths and weaknesses of an institution. On the other hand, accreditation is the outcome of the assessment process. So, one can quantify the quality of an institution though the NAAC accreditation. One of the key aspects of teaching and learning criteria is 'Best Practices'.

Objective

This paper delves into a best practice adopted by Dinhata College, that is inter-departmental seminars conducted at this college. Dinhata College, at present, has as much as 17 departments. Dinhata College established way back in 1956, in the first decade of independent India, takes pride in being the lone general degree college in the historically and strategically important Dinhata Sub-division of Cooch Behar district in West Bengal. The objective of this paper is to study the pattern of the inter-departmental seminars conducted at Dinhata College in the latter half of 2015 and the impact of this best practice on quality of education.

Methodology

The data for the study are primary in nature and collected from various departments of the college. The time frame is basically the latter half of 2015.

Inter-departmental Seminars at Dinhata College
'Useful Education for all'

- **Dinhata College motto**

Dinhata College, situated in the vicinity of the Indo-Bangladesh International Border area, has been trying its best to fulfill its social responsibility of providing higher education mostly to the first generation learners coming largely from rural background, scheduled caste communities and muslim communities which are mostly belonging to the OBC. Mostly hailing from traditional agrarian background, these students come to Dinhata College with a lot of expectations but little idea about their future course of life. On the other hand, this college has a galaxy of highly learned teachers who continuously helps in shaping the dreams of the students. In this way, this college undertakes the responsibility to guide their students to a bright future and thereby plays a messianic role in the socio-economic development of the whole area. Recently, Dinhata College has adopted best practice of hosting seminars, mostly inter-departmental, which involves spontaneous and interactive participation of the students. In the Table 1 below, some of the recent seminars, mostly inter-departmental in nature, held at the Dinhata College, are given.

Table 1: Inter-departmental Seminars of Dinhata College

Topic	Category	Organising Department(s)	Date
The issues of Enclaves: A Question of National Sovereignty"	Sensitization	Political Science	12th March 2015
On Indian Culture and Moral Philosophy	Seminar	Philosophy and History	8th July 2015
The Utility of Philosophy	Seminar	Philosophy	15th Oct. 2015
Is Indian Philosophy Pessimistic?	Seminar	Philosophy	23rd Dec. 2015
Recent Advances in Chemistry	Invited Lecture	Chemistry	14th August 2015
Kabhi Sarbavouma Rabindranath	Seminar	Bengali & English	9th June 2015
Changing Directions of the Postcolonial Indian Theatre	Seminar with University B. T. & Evening College, Cooch Behar	English	29th Sept. 2015
Socio-Economic-Political Thoughts of Ray Saheb Panchanan Barma	UGC Sponsored National Seminar	Political Science and Commerce	26-27th Sept. 2015
Three-day Drama Festival at Nripendra Narayan Smriti Sadan, Dinhata	Sensitization Programme with Department of English, University B. T. & Evening College, Cooch Behar	English	28th to 30th Sept. 2015
State of Commerce Education	Invited Talk	Commerce	7th Dec. 2015
Globalisation and Its Impact on Politics	Seminar	Political Science	15th Dec. 2015
Renaissance in Political Thoughts	Seminar	Political Science	15th Dec. 2015
Role of Self-help Groups as Catalyst in Rural Livelihood	UGC Sponsored National Seminar	Economics and Commerce	19-20th Dec. 2015
Insurance Marketing in India	Departmental Seminar	Economics	3rd Oct. 2015
Foreign Trade in India	Guest Lecture	Economics	13th Oct. 2015
Save the Girl Child	Guest Lecture	Dinhata College	21st Nov. 2015
Through Youth Development Programme Environment and Cultural Conservation and Alternative Livelihood	Departmental Seminar	Economics	27th Nov. 2015
Noticeable features of Harappan Culture	Departmental Seminar	History	20th Nov. 2015
Genesis of the Indian National Congress	Departmental Seminar	History	21st Nov. 2015
Cold War and its Different aspects	Departmental Seminar	History	23rd Nov. 2015
Vaishnava Padavali	Departmental Seminar	History and Bengali	10th Dec. 2015

Source: Primary Data

Analysis of Inter-departmental Seminars at Dinhata College

Initially, the College set up with the objective of promoting higher education for the first generation learners of Dinhata Sub-division of Cooch Behar has kept abreast with the changing demands, aspiration and outlook of the populace of this area and consequently, the objective has become broader. In this way, various departments of the college have organised seminars, workshops and sensitization programs focusing on capacity building in terms of research and imbibing research culture among the

staff and students. Organizing in-house and college/UGC funded inter-departmental seminars that focus on students' growth and foster their development towards critical thinking and writing, have now become a part of this college culture.

Seminars are organised in almost every college. But what is different in this college, is that it has a style of hosting in-house inter-departmental seminars that helps in creating synergies into the overall organisational objective of the college by combing its two or more departments. The college is catering to the students who mostly hail from educationally backward territories. Truly speaking, most of them are first generation learners. In this back drop the utmost effort of the faculty members is to groom them in all possible ways so that they academically come forward and compete with the advanced students specially in regard to independent thinking, writing and soft skills. Such events create greater exposure for these underprivileged students.

The college with its avowed objective mentioned above organised several seminars in which active participation of students was given first and foremost priority. The students under the guidance of a particular teacher of the respective department prepare papers on a topic to present in the seminar. Active participation by the students in this kind of seminars brings ample opportunity for them to interact with one another and instills in them the research aptitude which helps them a lot in higher studies. Moreover, some eminent academicians are invited by the respective department to deliver lecture on certain topics which enrich students' knowledge to a great extent. These lectures and seminars pave the way for students' exposure beyond classroom studies to a range of current socio-political, economic and scientific issues.

The students have proved that they have been inspired by such endeavours. By enthusiastically participating in the seminars, they have shown that

they welcome and revere India's multifarious culture. The in-house departmental seminars have opened a new vista in the teaching-learning process and created inquisitive, creative, innovative bent of mind among the students, indication of which has been reflected in their way of writing seminar papers and way of questioning in the seminars. The concept of seminars and talks, being relatively new at this college, met with minor hiccups at the start in terms of responses of the students and making them familiarise with the pros and cons thereof. But it gained popularity immediately after the first few seminars as a vehicle of quality teaching-learning practice. However, the college requires greater participation from the student community, a better equipped seminar hall with audio-visual aids and trained personnel for handling the audio-visual equipment and more generous allocation of funds.

Conclusions

'The state of West Bengal is at the crossroads of an exciting and challenging period in its history. As a multitude of avenues for growth and development emerge, it's of paramount importance that the state, as a collective identity, embark on a vibrant journey to realize dreams of a better future.' – (CII, 2009)

As the Confederation of Indian Industries (CII) in its Vision 2022 for the West Bengal so envisaged, there is tremendous potential for West Bengal across all fields – infrastructure, urbanisation, agriculture, business, health, environment, sports and above all, education. According to widespread consensus, education plays a crucial role in the development of a country (Krueger and Lindahl, 2001). In fact, according to many of the macro-economists like Lucas (1988); Barro (1991); Mankiw, Romer and Weil (1992), the impact of education on economic growth have been very well emphasised. Like any other college in West Bengal, education seems to of primary importance at the Dinhata College as well.

Organising the inter-departmental seminars at Dinhata College, which is also one of its best practices in education, is an important tool for quality enhancement and sustenance of teaching-learning process at the college.

Many departments combine and synergise to stage different inter-departmental seminars that take ultimately unique dimensions. In a quality drive, teachers from various departments brainstorm and arrive at mutually acceptable themes on which the inter-departmental seminars are conducted with the active involvement of students and staff. In this way, students are allowed to develop in a whole-round manner with their inner potential expressing through their presentation of different papers in front of the assembled audience. The quality of students is enriched; the teachers sustain the teaching and learning process through unconventional means and the overall quality of the higher educational institution is enhanced. The emblem of Dinhata College showcases a flying bird carrying ripe corn in its beak flutters in the College flag hoisted high up in the mast against the backdrop of the blue sky. It seems that the Dinhata College's educational mascot truly extends its giant wings and soars higher up towards the distant horizon to usher in a new quality culture across the Torsha river and heralds a new hope for the Dinhata College to emerge as a Centre of Excellence on the NAAC map in the coming years.

'Dinhata College has a proud history
where learned persons had set their foot
And where still today it reverberates
to the lively discourses of seminars
And slowly it transforms into
a educational centre of excellence.'

References

Barro, R. (1991), Economic Growth in a Cross-Section of Countries, *Quarterly Journal of Economics*, 106(2): 407-443.

British Council (2014), Devolution to the states, *Understanding India: The future of higher education and opportunities for international cooperation*, February, New Delhi: British Council of India, p.19.

CII (2009), Introduction, *West Bengal Vision @ 2022: Realizing a collective dream*, Kolkata: PricewaterhouseCoopers, p. 2.

CII (2009), Education and Skill Development, *West Bengal Vision @ 2022: Realizing a collective dream*, Kolkata: PricewaterhouseCoopers, p. 18.

Jayapalan, N. (2005), *History of Education in India*, New Delhi: Atlantic Publishers and Distributors, p. 108.

Krueger, A.B. and Lindahl, M. (2001), Education for Growth: Why and for Whom?" *NBER Working Paper*.

Lucas, R. (1988), On the Mechanics of Economic Development, *Journal of Monetary Economics*, 22: 3-42.

Mankiw, N.G.; Romer, D. and Weil, D. (1992), A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics*, 107(2): 407-437.

Prasad, V.S. (2005), Value framework for assessment of higher education institutions, *NAAC*, Bangalore, September.

Thyagarajan, S.P. (2013), RUSA, the way forward in higher education in states, *The New Indian Express*, November 24.

Need for Comprehensive Assessment System for Quality Education

Debaprasad Sarkar

Abstract

Over the last few years, national and state policy makers have succeeded in building quite a large number of institutions and classrooms throughout India, to achieve enormous expansion of access to education and near universal primary enrolment. However, learning depends not only on resources invested, but also on the implementation of quality policies and effectual use of institutions to ensure the improvement of quality education. The purpose of this paper is to provide an overview of what matters most for building a more effective student assessment system. In India, a number of initiatives have been taken in recent days (like, Continuous and Comprehensive Evaluation (CCE), Programme for International Student Assessment (PISA)) etc.) to revamp the long practiced elitist system of education inherited from the colonial past. This paper examines a brief recent scenario of assessment and evaluation process of testing student standards and research base from experiences in India and provides a framework to construct a sound and sustainable assessment and evaluation system for quality education in India to move towards an efficiency-driven economy.

Assistant Professor of Economics, Barrackpore Rastraguru Surendranath College, West Bengal; E Mail: s19debaprasad@gmail.com

Introduction

The Global Competitiveness Report (GCR), published annually by the World Economic Forum (WEF), classifies National Economics in three broad categories : a) factor-driven, b) efficiency-driven and c) innovation-driven. A factor driven economy is defined by GCR as one that competes based on its factor endowment, which mainly comprises of unskilled labour and natural resources. With the economic development factors like higher education and training, financial market development, and technological readiness can increase the efficiency of a country which can lead the country as efficiency-driven. Developed industrialized countries like United States or Germany have gone through the long way of reaching the top of the development pyramid and they are classified as innovation-driven economy. Russia and Brazil are seen at the transitional path from efficiency-driven to innovation-driven economy. Along with the 36 other states, India is now at the transitional path from factor-driven to efficiency-driven economy. India actually remains a factor-driven economy at least partially because its transformation entirely associated with slow growth of higher education & its quality, research & development and lack of innovation & intellectual property.

The story of India's educational achievements is one of mixed success. On the lower end, India has 18 per cent of the world's population but 37 per cent (287 millions) of the world's illiterates, and high proportion of the world's out-of-school children and youth (UNESCO, Jan 29, 2014). On the positive side,

it has made encouraging recent progress in raising schooling participation.

Monitoring, Evaluation and Assessment in Education

We rarely try to differentiate the term Assessment, Evaluation and Examination and often interchangeably use them in awarding or classifying or certifying students into categories in practice. Among these three alternatives, examination is quite understandable as it is widely practiced and it can be visualized through numbers and loopholes of examination are inherited within the process with full of ambiguity, uncertainty and unreliability factors. Assessment or evaluation is more specific terms to improve learning focusing on learning outcomes through diagnosis of learning difficulties.

There are three main concerns for monitoring and evaluation in education: a) to formally regulate desired levels of quality of educational outcomes and provisions (examinations of certifications of students as well as accreditation and certifications for the quality of educational systems and sub-systems); b) to hold educational service providers accountable and to support ongoing improvement in education (review of performance and functioning by parents, outside parties etc.) and c) decentralization policies as a mechanism to stimulate improvement in education (mainly in terms of functional decentralization). What all three functions of M&E , that were discussed in this section , have in common is the purpose to stimulate quality. The first one, accreditation or certification depends on formally and officially established criteria and norms. The second one, accountability, may benefit from these formal criteria and norms. The third has a focus on within-unit improvement. Thus, the substantive interest in monitoring and evaluation is to check the 'quality' or the "well-functioning" in general terms. In practice 'quality' may be related to 'relevance' or 'effectiveness' or 'equity and efficiency'.

"Assessment goes to the heart of what matters in education: not just enrollment and completion rates, but the ultimate goal of student learning" (World Bank, 2010, p. 5). Assessment is the process of gathering and evaluating information on what students know, understand and do in order to make an informed decision about next steps in the educational process. Effective assessment systems are those that provide information of sufficient quality and quantity to meet stakeholder information and decision making needs in support of improved education quality and student learning outcomes (Ravela et al., 2009). Governments, international organizations, and other stakeholders are increasingly recognizing the importance of assessment for monitoring and improving student learning and achievement levels, and the concomitant need to develop strong systems for student assessment (IEG, 2006; McKinsey & Company, 2007; UNESCO, 2007). This recognition is linked to growing evidence that many of the benefits of education cultural, economic, and social accrue to society only when learning occurs (OECD, 2010).

Despite the increasing interest in student assessment, a few countries have in place the policies, structures, practices, and tools that constitute an effective assessment system, particularly the case for low income countries. Some of these countries have experimented with large scale standardized assessments of student learning and achievement levels, but too often these have been ad hoc or 'one off' assessments and are not part of an education strategy in 'sustained' system. One off assessments can have shock value and create an opening for discussions about education quality, and this can be a short term strategy for putting learning on the agenda. But a 'sustained' assessment system allows for the possibility of monitoring trends in achievement and learning levels over time and a better understanding of the relative contribution of various inputs and

educational practices to changes in those trends. To assess the overall development of a child, the instrument Continuous and Comprehensive Evaluation (CCE) can be used to enhance the learning desire, but neither teachers nor students probably understand the whole concept of CCE and least bother about the improvement of the quality and skill.

This paper examines a brief recent scenario of assessment and evaluation process of testing student standards and research base from experiences in India and provides a framework to construct a sound and sustainable assessment and evaluation system for quality education for India to move the way forward to efficiency-driven economy.

Theory and Evidence on Assessment

Evaluation is the systematic determination of merit, worth and significance of something or someone and assessment is the process of gathering and analyzing specific information as part of an evaluation process (Kapur, 2008). A basic idea of the research on student assessment is that the right kinds of assessment activities, and the right uses of the data generated by those activities, contribute to better outcomes, and or improved policy decisions (Heubert and Hauser, 1999). What constitutes 'right' is largely driven by a set of theoretical and technical guidelines for test developers and users of assessment information (AERA, APA, and NCME, 1999). There also is a sizeable body of empirical research showing the benefits of specific types of assessment activities, when implemented and used correctly, on student learning. Black and Wiliam's (1998) synthesis of over 250 empirical studies on the impact of high quality, shows student gains of a half to a full standard deviation on standardized achievement tests, with the largest gains being realized by low achievers (Singapore, Korea, Japan and Hong Kong). Bennett (2011), however, notes that more work needs to be done to define and isolate the specific characteristics of formative classroom assessment activities that lead to improved student learning outcomes.

Correlational research on upper secondary exit examinations demonstrates a link between countries that have defined sustained policies and higher student performance levels on international assessments, such as PISA or TIMSS (Mane and Bishop, 2001). Other studies show a significant link between specific characteristics of the tests used in examination and effective student learning outcomes (Hill, 2010). At the same time, these kinds of examinations have a negative impact on students from disadvantaged groups by disproportionate educational opportunities (Greaney and Kellaghan, 1995; Madaus and Clarke, 2001). Because of these kinds of equity issues, the uses and outcomes of examinations must be carefully monitored at the system, group, and individual levels, and efforts should be made to reduce or mitigate any unintended negative consequences. Results from large scale, system level assessments of overall student achievement levels increasingly provide the foundation for test based accountability programs in many countries. Research shows an overall weak, but positive, link between the accountability of educators and better student learning outcomes (Carnoy and Loeb, 2002). Till date, research suggests that key determinants of whether the effects of test based accountability exercises are more positive than negative include the technical quality of the tests themselves, the alignment between the test design and the way test results are used, and the extent to which supports are in place to help schools or teachers identified as underperforming (Ravela, 2005).

Research is increasingly focusing on the characteristics of effective assessment systems (classroom assessment, examinations, and large scale, system level assessments). The practices of high performing education systems around the world

(Finland, Singapore, United Kingdom) and student assessment activities in these systems illustrate a broad Vision of what an effective assessment system looks like (Hammond and Wentworth, 2010). Other studies investigate these planning, process, and implementation issues to build a unified framework for understanding what an effective student assessment system (Ferrer, 2006, Lockheed, 2009, McDermott, 2011).

The Universal Basic and Secondary Education (UBASE) initiative has examined , from a number of perspectives, the challenge of providing every child in the world with a good basic and secondary education. The rapid expansion of high quality education is essential to the economic, social, and political well being of developing nations (Bloom and Cohen, 2005). Over the last 20 years, many countries have started implementing assessment exercises or building on existing assessment systems (UNESCO, 2007). In addition, there has been huge growth in the number of countries participating in international comparative assessment exercises such as the Trends in International Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA).

In the context of school education in India, evaluation stands for a structured process of collecting, analyzing and interpreting student's progress and achievement both in curricular and non-curricular areas. It involves taking into consideration factors like the content, classroom processes and the growth of individual learners along with the appropriateness of the evaluation procedures (Sarkar, 2014). Assessment in India is also a means to provide constant feedback to the learner to make the course effective. So far in India, there is no rigorous evaluation of the impact of this massive intervention or its individual components. Two recent impact evaluations of the District Primary Education Project (DPEP) the predecessor to SSM/SSA, quite similar a

treatment intensity approach (Schmid, 2006) and a propensity score matching approach (Jalan and Glinskaya, 1999) has done in evaluating the evaluation and assessment procedures in India. While all those studies find substantial programme impacts and find that impacts are greater for low caste children and girl's children. According to National Achievement Survey (NSA) by NCERT, there is a sharp fall of quality education in the third Cycle (2011-13). To identify the strength and weakness of the running education system, India participated in the Program for International Student Assessment (PISA) PISA 2009+ cycle in 2010-11.

Present Education Scenario in India

The non inclusive elitist approach of education in India, inherited from colonial past, has not changed much even after independence. Education in India is provided by the public sector as well as the private sector, with control and funding coming from three levels: federal, state, and local. Child education is compulsory. Education in India falls under the control of both the Union Government and the states, with some responsibilities lying with the Union and the states having autonomy for others. The National policy on education (NPE 1986) is the first break through in designing the universaliszation of elementary education through the Panchayati Raj system. The aim of Universal Elementary Education (UEE) started with the inception of making education as a fundamental right. The Right to Education (RTE) clarifies the free education to eliminate the all soft and hard barrier from pursuing elementary education (Sarva Shiksha Abhiyan, 2004). India has made progress in terms of increasing primary education attendance rate and expanding literacy to approximately two thirds of the population. The private education market in India is merely 5% although in terms of value is estimated to be worth $40 billion in 2008 and will increase to $68 billion by 2012. Despite growing investment in education, 25%

of its population is still illiterate; only 16.5% of Indian students reach high school, and just 9% graduate, 25% of teaching positions nationwide are vacant, and 57% of college professors lack either a master's or PhD degree. As of 2011, there are about 1700 degree-granting engineering colleges in India with an annual student intake of 582,000, plus 1,244 polytechnics with an annual intake of 265,000 with

Table-1: General details and literacy in India

Primary language	Hindi, English, or State language
System Type	Federal, state, private
Established Compulsory Education	1-Apr-10
Literacy (2011)	
Total	74%
Male	82%
Female	65%

Source: *Census Report, 2011*

Table-2: Higher Education in India

Financial Year	Universities	Colleges	Total enrolment
1981-82	132	4880	29,52,066
1991-92	186	7,346	52,65,886
2001-02	248	15,437	89,64,680
2011-12	574	35,539	2,03,27,478

Source: *GOI, 2013*

Evaluation and Assessment of Education in India
Primary Secondary education

India has experienced mostly 'one off' assessments to have a shock value and create an opening for discussions about education quality as short term strategy. Assessment programs in India consist of educational achievement tests that are meant to monitor acceptable levels of performance in the basic

shortages of staff and infrastructures raised a question over the quality of education. However, education in India, among all indicators of the capability for creation and dissemination of knowledge in the society has continuously increasing in the past three decades at least in terms of number of enrolment and number of institution table 1 & 2.

school subjects in our country (tests taken are 11/12 at the end of primary school or sometimes 14/15 at the end of lower secondary school). Typically national assessment programs in India is mainly target samples of students depending on i) main audiences and type of information use, ii) technical issues (comparable content and difficulty level) iii) organizational capacity required (skills in subject-matter, curriculum analysis, writing test-items).

Having achieved near universal enrolment of children and expansion of access to education, the country is trying to light on the focus of quality of education for all by improving the pupil-teacher ratio, recruitment of quality teachers, development of curriculum, establishment of bridging- courses for dropouts; in-service training for teachers; and grants for teaching-learning materials. The concern with the quality education is thus imparted very much within the present educational setup. The Annual State Education Report (ASER) or the international achievement Survey of NCERT or international tests (PISA) have shown that the levels of learning and basic competencies are much lower with what they should be.

Table – 3: Grading system in elementary level of education CCE system

Grade	Percentage of marks	Significance
A	81-100	Very good
B	66-80	Good
C	51-65	Satisfactory
D	36-50	Average
E	21-35	Poor
F	0-20	Not satisfactory

Source: *GOI, 2013. CCE system used by Govt. and Govt. -Aided Primary Schools for Continuous and Comprehensive Evaluation (CCE) in Class – I to Class – IV.*

Table – 4: Grading system in elementary level of education EE and DAT System

Grade	Percentage of marks	Significance
A	41-50	Very good
B	33-40	Good
C	26-32	Satisfactory
D	18-25	Average
E	0-17	Not satisfactory

Source: GOI, 2013. EE and DAT System used by West Bengal Board of Primary Education for External Evaluation (EE) in Class – II And Diagnostic Achievement Test (DAT) in Class – III

Table-5: Grading System in secondary level of education

Grade	Percentage of marks	Significance
AA	90-100	Outstanding
A+	80-89	Excellent
A	60-79	Very good
B+	45-59	Good
B	35-44	Satisfactory
C	25-34	Marginal
D	0-24	Not satisfactory

Source: GOI, 2013.

Table - 6: New Grading System of CBSE

Grade	Percentage of marks	Significance
A1	91-100	10.0
A2	81-90	9.0
B1	71-80	8.0
B2	61-70	7.0
C1	51-60	6.0
C2	41-50	5.0
D	33-40	4.0
To Qualify: 33% marks in both theory and practical separately in subjects addition to 33% marks in aggregate.		

Source: GOI, 2013.

The quality of education is thus suffered a lot in different tire of education, even when the proper implementation of Right to Education (RTE, 2009) has been the focal agenda. According to National Achievement Survey (NSA) by NCERT, there is a sharp fall of quality education in the 3rd cycle.

Table 7: National average % score of class VIII students in different subject

Subject	Language	Mathematics	Science	Social Studies
Cycle-2	56.57	41.30	37.78	44.15
Cycle-3	46.20	3.28	36.34	38.34

Source: National Achievement Survey of NCERT Cycle-2 (2007-08) and Cycle-3 (2011-13)

Evaluation and Assessment of Higher Education in India

The Indian education sector gained significant attention from policymakers, investors, and the media in the years 2009 and 2010. India is now the home of the largest numbers of higher education institutions in the world comprising at least 550 universities and 35,000 colleges. More than 160,000 students leave Indian shores annually to study at universities abroad.

There are at least 100 foreign educational institutions offering programmes in the country, most of which are vocational or technical. In the Indian educational context internationalization as a strategy for building reputation ranges from establishing international collaborations for student/faculty exchange programmes, to joint research projects and offshore campuses. The Cabinet's recent decision to allow foreign universities open campuses in India has open

a huge market but foreign universities will have to follow the guidelines of the University Grants Commission. The government will have the right to reject an application from any foreign university on the grounds of safeguarding national security.

The number of colleges and universities and other institutions in India has increased a lot to success the mission of higher rate of population to increase the skilled manpower but rarely have good assessment system (Table-8). The Indian education sector is

growing at a fast pace but the professionals including faculty and administrators are lagging behind both in quantity or quality. Given the shortage of faculty the institutions will either start to compromise on the quality of teaching. On the administrative front, the issue is more about the lack of education manager and recognition of the education management profession. Thus, the quality of the Indian higher education system has lagged behind the growth in quantity.

Table-8: Higher education institutes and number of students

Year	University	College	Total Higher education institutes	Student (in Million)
1950-51	28	578	606	0.2
1980-81	123	4738	4861	2.8
2000-01	266	11146	11812	8.8
2011-12	547	33023	35546	15.8

Source: GOI, 2013.

According to a recent survey by the Times Higher Education for BRICS and emerging economics in 2016, none of the Indian institute holds position in first 15 institutes, only Indian Institute of Science, Bangalore hold 16th position among 200 institutes. Therefore, India's competitiveness is largely based on supply of unskilled labour. Even some of the studies have shown that the basic advantage India has today is its relatively large pool of skilled workers (Ablett et al, 2007; Tiwari and Herstatt, 2014), it is matter of fact that the quality of education in most of the institutions and ratio of graduates in total population remain matter of concern. However, more institutions are now aiming for high quality offerings, building world-class institutions and higher education management. The activities and future plans of the National Assessment and Accreditation Council (NAAC) are guided by its vision (combination of self and external-quality evaluation, promotion and sustenance initiatives) and mission (translating the

NAAC's vision into reality) that focus on making quality assurance an integral part of the functioning of higher education institutions.

India and International Assessment Programs
In order to assess the real achievement and to identify the strength and weakness of the running education system, India participated in the Program for International Student Assessment (PISA) PISA 2009+ cycle in 2010-11 by piloting in two states Himachal Pradesh and Tamil Nadu, students specific to 16 year of age to understand the process and to know the comparative level of Indian students with the rest of the world. Out of all 74 participating countries, India (only on the basis of Himachal Pradesh and Tamil Nadu) got 2nd last position just above Kyrgyzstan from the bottom. Some highlights of PISA 2009+ cycle in 2010-11 are given here in table-9 to understand the relative position of India.

Table-9: Mean Score in PISA+ Cycle (on 0 to 700 scale)

Area	Brazil	Tamilnadu	HP	OECD average
Reading	412	335	314	493
Mathematics	386	350	338	496
Science	405	347	326	501

Source: Report on PISA 2009+ cycle in 2010-11, GOI.

Framework for Monitoring, Evaluation & Assessment

After observing the up and down side of India's education profile and Assessment structure, this paper is now tries to figure out a compressive Monitoring, Evaluation &Assessment framework for India from the shared experiences from developing world, through which the role of assessment for improving access, quality, efficiency, and equity within the education system can be ensured.

Monitoring & Evaluation

To enhance the quality of the Indian higher education system, a strong Monitoring and evaluation is required. A schematic 'phase model' framework for broader access to schooling, greater survival rates, better student learning, expanded employment, higher earnings is presented in table-10 (Scheerens, Tan and Shaw, 1999). All the phases take place in an overall social, economic and policy context because it establishes a baseline against which progress can be assessed and how it affects the overall socioeconomic, administrative, management and incentive structures.

Table 10: Schematic model of the progression

Type of Monitoring	Recipient
phase 0: (risk indicators)	Ministry of Education (MOE)
phase 1: (accounting for funding)	Ministry of Education (MOE)
phase 2: (implementation/output indicators)	Ministry of Education (MOE)
phase 3: (outcome indicators)	Ministry of Education (MOE)
phase 4: (impact indicators)	Ministry of Education (MOE) and other ministry
Type of Evaluation	
Effectiveness of procurement processes	MOE
Effectiveness of schooling and project management processes	MOE, regional officers school leaders & teachers, parents
Effectiveness of school-labor market transmission processes	MOE, other Ministries

Source: Scheerens, Tan & Shaw, 1999.

Assessment

In order to approach the assessment framework two main dimensions are discussed here i) purpose of assessment and ii) quality of assessment. There are three main kinds of interdependent assessment activities a) classroom assessment (provide 'real time information' to support teaching and learning), b) examinations (impact evaluation of teaching and learning on skill and knowledge), and c) large scale, system-level assessment (provide information on system performance level and related contributing factors). There are also three main drivers of information quality in the assessment system a) enabling context (key driver of long term quality and effectiveness of the assessment system), b) system alignment (to know the aligned or coherent with components of the education system) and c) assessment quality (psychometric quality of instruments, processes and procedure of assessment activities) (AERA, APA and NCME, 1999 and Hammond and Wentworth, 2010). India has made lot of experiments in the field of classroom assessment and examinations but has done a little to develop large scale, system-level assessment and on quality of assessment like TIMSS—Trends in International Mathematics and Science Study; PIRLS—Progress in International Reading Literacy Study; PISA—Program for International Student Assessment etc. or regional assessment exercises, such as SACMEQ, PASEC, and LLECE toward creating an enabling context. To review assessment systems and plan for improvement of education and learning, the three

quality drivers and assessment types are to be arranged in the following manners (table-11).

Table-11: Framework for Building Effective Assessment System, with Broad Indicator

	Classroom Assessment	Examination	Large scale, system-level assessment
Enabling Context		Policies Leadership and public engagement Funding Institutional arrangements Human resources	
System Alignment		Learning/quality goals Curriculum Pre- and in-service teacher training opportunities	
Assessment Quality		Ensuring quality (design, administration, analysis) Ensuring effective uses	

Source: World Bank, 2010.

Before establishment of an effective education system, and the accompanying assessment system as above, the problem of the diverse needs and interests of learners, long term societal requirements, teaching facility for the "new basic skills" to prepare learners to meet the needs of a changing economy should be taken care of and it is extremely difficult in Indian context.

Conclusion

India along with all nations seeks to enhance her education system and mostly considers assessment a legitimate and potentially useful tool in the improvement process. India has experimented a large scale standardized assessments of student learning and achievement levels on the ad hoc or 'one off' assessments and are not part of an education strategy. A 'sustained' assessment system allows for the possibility of monitoring trends in achievement and learning levels over time and a better understanding of the relative contribution of various inputs and educational practices to changes in those trends. Observing the impressive side and down side of India's education profile and assessment structure, a compressive Monitoring, Evaluation &Assessment framework is thus figured out for India for improving access, quality, efficiency, and equity within the education system. Good and sustained assessment systems alone can't have a modest positive impact without meaningful and substantial education reforms to handle all forms of challenges for sustained and coordinated changes in all system components are ensured. In order to way forward in the transitional path from factor-driven to efficiency-driven economy and make a footprint in efficiency-driven economy the learners should prepare with "new basic skills" through a compressive Monitoring, Evaluation &Assessment framework is urgent.

References

Ablett, Jonathan et al, (2007): 'The Bird of Gold'; the rise of India's consumer market. *McKinsey global institute*; Mumbai.

Bennett, R. E. (2011): "Formative Assessment: A Critical Review." *Assessment in Education: Principles, Policy and Practice* 18(1).

Black, P., and D. Wiliam. (1998): "Assessment and Classroom Learning." *Assessment in Education: Principles, Policy and Practice* 5(1),7–73.

Bloom, D. E., and J. E. Cohen. (2002): "Education for All: An Unfinished Revolution." *Daedalus* 131 (3): 84–95.

Carnoy, M., and S. Loeb. (2002): "Does External Accountability Affect Student Outcomes? A Cross State Analysis." *Educational Evaluation and Policy Analysis* 24(4): 305–331.

Clarke, M. (2007): "State Responses to the No Child Left Behind Act: The Uncertain Link between ...

and 'Proficiency for All'." In C. Kaestle and A. Lodewick, eds., *To Educate a Nation: Federal and National Strategies of School Reform* (pp. 144–174). Lawrence: University of Kansas Press.

Darling Hammond, L.,and L. Wentworth. (2010): *Benchmarking Learning Systems:*

Student Performance Assessment in International Context. Stanford, CA: Stanford University.

Ferrer, G. (2006): *Educational Assessment Systems in Latin America: Current Practice and Future Challenges.* Washington, DC: Partnership for Educational Revitalization in the Americas.

Greaney, V., and T. Kellaghan. (2008): *Assessing National Achievement Levels in Education.* Washington, DC: World Bank.

———. (1995): *Equity Issues in Public Examinations in Developing Countries.*Washington, DC: World Bank.

Government of India (2010, 2013): "*Higher Education*", *National Informatics Centre.* Education.nic.in. http://www.education.nic.in/higedu.asp. Retrieved 2010-09-01.

Heubert, J.,and R. Hauser. (1999): *High Stakes: Testing for Tracking, Promotion, and Graduation.* Washington, DC: National Academy Press.

Hill, P.(2010): Examination Systems. *Asia Pacific Secondary Education System Review Series.* Bangkok: UNESCO.

Information for growth (2006): *The Department of Religious Education at the National Catholic Educational,* https://ncea.caltesting.org/.../IFG%20Interpretation%20Manual.

Jalan, J. and E. Glinskaya, (1999): *Improving primary school education in India:* An impact assessment of DPEP Phase I.

Kapur, K. (2008): Estimate for India, from India, NCERT/21 Jul 08/IST 11:05; *The Hindu.*

http://en.wikipedia.org/w/index.php?title=EducationinIndia&oldid=456849847"

Kifer, E. (2001): *Large Scale Assessment: Dimensions, Dilemmas, and Policy.* Thousand Oaks, CA: Corwin Press, Inc.

Lockheed, M (2009): *Review of Donor Support for Assessment Capacity Building in Developing Countries.* Unpublished manuscript, Washington, DC: World Bank.

Madaus, G., and M. Clarke. (2001): "The Impact of High Stakes Testing on Minority Students." In M. Kornhaber and G. Orfield, eds., *Raising Standards or Raising Barriers: Inequality and High Stakes Testing in Public Education* (pp. 85–106). New York: Century Foundation.

Mane, F. & Bishop, M. (2001): *Is standard-based reform working? ...and for whom?;* CAHRS Working paper #01-11; Ithaca, NY: Cornell.

McDermott, K. A. (2011): *High Stakes Reform: The Politics of*

Educational Accountability. Washington, DC: Georgetown University Press.

McKinsey & Company (2007): *How the World's Best Performing School Systems Come*

Out On Top. London: McKinsey & Company.

Organisation for Economic Cooperation and Development (OECD), (2010): *The High Cost of Low Educational Performance. The Long Run Economic Impact of Improving PISA Outcomes.* Paris: OECD.

Ravela, P. (2005): "A Formative Approach to National Assessments: The Case of Uruguay."*Prospectsc* 35(1):21–43.

Ravela, P., P. Arregui, G. Valverde, R.Wolfe, G.Ferrer, F.Martinez, M. Aylwin, and L. Wolff. (2008): "*The Educational Assessments that Latin America Needs."* Working Paper Series No. 40. Washington, DC: Partnership for Educational Revitalization in the Americas.

Ravela, P., P Arregui, G. Valverde, R.Wolfe, G. Ferrer, F. M. Rizo, M. Aylwin, and L. Wolff. (2009): "*The Educational Assessments that Latin America Needs.*" Washington, DC. PREAL.

Sarkar (2012): 'Assessment in Education in India', *SA-eDUC JOURNAL;* Volume 9.

Scheerens, J., Tan, J-P., & Shaw, R.S. (1999): *Monitoring and evaluation in World Bank-financed education operations: current practice and scope for improvement.* Washington D.C.: World Bank.

Schmid, Juan Pedro (2006): Was the District Primary Education Programme in India Effective?, draft PhD thesis chapter, Nadel ETH (Swiss Federal Institute of Technology), Zurich.

Tiwari and Herstatt, (2014): *Frugal Innovation and Analogies: Some Propositions for Product Development in Emerging Economies,* TIM-TUHH Working Paper No. 84.

UNESCO, Jan 29, 2014; "Report on Education', world.time.com/2014/01/29/indian-adult-illiteracy

———.(2007): *The Dakar Framework for Action. Education for All: Meeting our Collective*

Commitments. Paris: UNESCO.

.... (1998): "*Wasted Opportunities: When Schools Fail.* In *Education for All: Status and Trends;* 1998. Paris.

World Bank. (2010): Russia Education Aid for Development (READ) Trust Fund, *Annual Report 2009.*Washington, DC: World Bank.

World Bank (2014): *An Education in India.* Available from: http://www.worldbank.org.in.

World Economic Forum (2014): *The Global Competitiveness Report 2014–2015: the framework of The Global Competitiveness and Benchmarking Network.* http://www3.weforum.org/docs/WEFGlobalCompetitivenesReport2014-15.pdf

www.naac.gov.in.

Promoting Spiritual Intelligence through Education: an Essential Tool in Quality Learning

Sohom Roy Chowdhury

Abstract

Mankind is passing through a crisis. It is on the cross-road of history. The integrity among human beings is threatened. Standing on the door-step of this changing time, the contemporary conflict-ridden society has placed its faith on the Education system which has the potential for nourishing both rational & relational skills in learners. Actually it can be done by imparting Value-based education, ethical sense, fellow feeling and self-management and more essentially by focusing on spiritual literacy of human beings so that our lives become more purposeful, harmonious and wholesome in nature. In this respect proper nourishment of spiritual intelligence is the worthiest one as it is that capacity which enables one to seek out solutions for inner conflicts and shows the way of a happy and serene life with harmonious and loving relations with the fellow beings.

This paper aims to discuss the effect of Spiritual Intelligence on the overall development of a student that can play a tune in favour of quality enhancement so far as the teaching-learning process is concerned. The fullest potentiality of human beings can be successfully materialized if there is a proper assimilation of spiritual essence within their mental framework and the practical part of their lives.

Contractual Full-time Teacher of English Method, Nandalal Ghosh B.T. College, West Bengal; Email: sohomroychowdhury@gmail.com

Introduction

Mankind is passing through a crisis. It is on the cross-road of history. The integrity among human beings is threatened. The forces of disintegration are let loose. Secessionist forces are shaking the very foundation of our solidarity. A chaotic disharmony in the form of communal feuds, regional and parochial feelings, caste antagonism, linguistic and political intolerance etc. are raising their ugly heads over the surface.

Standing in the front of these tumultuous upheavals we should turn to the age-old concept of educational nourishment that could possibly make a positive paradigm shift. This shift will definitely be in the form of re-spiritualization of society, declining of self-indulgence and materialism along with other rampant forces. This nourishment should be in the form of spiritual literacy that can help humans to be responsive in nature, developing a holistic and compassionate view about the world around.

The term spiritual literacy is derived from the concept of Spiritual Intelligence that focusses on expanding our mental vista to address and solve problems regarding our material self. No doubt, the main carrier in this regard is Education as it is the tool that can simply put forward the ethical notions adjustable to the norms and standards of the society. Education should pave the path by walking on which one can develop ability to solve future problems in a more efficient and holistic way. This notion of interconnectivity will certainly be and part and parcel in the creation of universal brotherhood.

Intelligence- a Concept

Intelligence is the indispensable part of human life.

the ability without which there will be no meaning of our existence. According to David Wechsler (1940), "Intelligence is the aggregate or global capacity of an individual to act purposeful to think rationally, and to deal effectively with his environment". Intelligence has multifaceted characteristics and critics have accepted this view as presented by the psychologists. One can mention here the name of Howard Gardner who has endowed the world with the concept of multiple intelligences. He has framed out nine different intelligences in total namely,

1. Bodily-kinesthetic
2. Logical-mathematical
3. Linguistic
4. Musical
5. Spatial
6. Intrapersonal
7. Interpersonal
8. Naturalist &
9. Existential.

These types of intelligences are obviously rational in nature and in the early twentieth century psychologists attempted to find out apt measures to measure the level of intelligence which they termed as I.Q (originally derived from German Intelligenzquotient).

In the decade of 1990s a new concept hit the psychological paradigm. It is the concept of Emotional Intelligence, defined first by Salovey and Mayer (1990) and popularized by Daniel Goleman (1995) It is said to include three skills —

1. Emotional awareness (to identify the emotion of self as well as that of others)
2. Connecting emotions to apply them in solving different tasks
3. Ability to regulate emotion of the self as well as that of others.

The developmental process continues and we are being gifted with the idea of Spiritual Intelligence with the advent of the new era. It is connected to our brain function which allows us to hope and dream and visualize and to connect us to our purpose in life. It is actually a multi-sensory approach that is needed to deal with the problems encountered while listening to the inner self.

Problem of Meaninglessness

The primary motivation of our lives is the search for meaning in each and every contexts. It may be called the prima facie of our existence without which we would feel shallow or empty at our core. According to Viktor Frankl (1984), "This meaning is unique and specific in that it must and can be fulfilled by him (man) alone; only then does it achieve a significance which will satisfy his own mil to meaning."

Actually this search for meaning means to experience the spiritual that is meant to be in touch with some deeper, larger, richer sphere that may put one's limited situation into a new perspective. 'That spiritual 'something more' may be a deeper social reality or social web of meaning. It may be an awareness of or attunement to the mythological, archetypal or religious dimensions of our situation. It may be a sense of some more profound level of truth or beauty. And/ or it may be an attunement to some deeper, cosmic sense of wholeness, a sense that our actions are part of some greater universal process' (Zohar, 2012).

In earlier days, when human beings lived within a culturally embedded society with .fixed problems and solutions, people would not have to ask such type of questions. That is because of their limited demands, functioning moral codes and definite aims. With the advent of modern perspectives a kind of rapid change has been occurred. A typical taken–for–granted approach overwhelms the lives of the people. Today's people are not happy with the prevalent structure, they question the structure itself and try to set up new framework of values.

In today's topsy-turvy world the breach of ethical conducts is a common factor that could possibly be defined as the root of all problems in the form of spiritual crisis encountered now-a-days. It is obvious that today's fast-pacing lifestyle compels the parents to keep pace with it for a sustainable future. But it also creates a chasm with the next generation. The

notion of spending quality time is often overlooked and as a result importance of human relations is often being neglected. On the other hand the advent of digital age though provides us with the informational support; still it makes us artificial to the core. Violence in its manifold manifestations, "propaganda-wars in public places, agenda-wars in work places, gender-wars in home" (NCF review 2005), has overwhelmed the lives of human beings. Again the unscrupulous activities practiced by the so called sensible persons would certainly affect the moral framework of the next generation. The bookish knowledge of value and morality is at a dead-end here.

Spiritual Intelligence –the Essence of Hope

At this juncture, the practice of Spiritual Intelligence would be of immense value as it helps one to create a coherent whole that helps to broaden the outlook. It enables man to pose questions about the boundaries – a kind of play is initiated in the form of 'infinite game'. This power differentiates us from being a machine or an animal. It gives one the moral sense, allows us to be creative and think beyond the material life. This sense is indeed important as the so called material nature of life fosters a sense of misidentification which blocks the access to the peaceful, loving and joyful state of mind.

One has to act according to the situation, the supports of both rational and emotional intelligences are there. But the spiritual Intelligence endows him/her with the ability to understand the context and thus guide the situation. In fact this process enhances the capacity of creative and intuitive thinking that helps one to deal more successfully in his life.

Spiritual Intelligence helps a person to think of the whole instead of part in every condition. This kind of notion enlarges the mental sphere so that mere distinctions would not pose serious problems. It also tells us about the consequences of our actions on others, thus helping us to choose the more proper

track. In fact Spiritual Intelligence enables us to move towards wisdom. This can facilitate an inner peace that provides tranquility in all our actions.

How to Promote It

Considering this unfathomable chasm, the educational aims have been expected to be instrumental to salvage goodness by making man spiritually intelligent, preserving values like mutual respect, fellow feeling, and maintenance of peace among human beings. It is actually a serene path of healthy living as discussed by all major concerns. Way back in 1996, the 'Learning the Treasure Within' focused on the complete development of man by presenting four pillars and the two of these i.e. 'Learning to Live Together' and 'Learning to Be' do underline the necessity of value for a healthy living. Karan Singh, one of the eminent members of the Delor's Commission (1996) has made a very pertinent remark in this respect. According to him, "Learning to Be" suggests that we should behave 'as responsible and creative citizen' so that 'caring and compassionate consciousness' could be fostered.

It should be a totalitarian process that may begin from the school level and practiced through the rest of one's life. The great emphasis is on the education system as 'the destiny of India is being shaped in her classrooms' (Kothari Commission, 1964-66). In this age of topsy-turvy situations, the elixir of education only can be proved effective. It is the apt time to focus on the spiritual development of the students by providing enough space for spiritual practices.

For this the arrangement for reflective practices should be at place. This may include reading poems, meditation, studying lives of great spiritual personalities, focusing on service-learning process, practicing listening activities, keeping a diary of the doings of everyday etc. All of these practices are meaningful and purposive in this connection to a great extent.

In fact we should focus on to be compassionate to

nature and to be so, one has to take control of his motives or intensions – the drives that compel us to go beyond the necessity. The touch of today's heinous culture motivates man to obtain more and more and this urge creates a spiritual imbalance. One should have a clear-cut idea about where to stop and judge every such programmed response like motivation from the context of his/her need and ability.

Practices regarding self-exploration, value orientation and morality training are the demands of time. These lessons are designed to teach the learner the ways of thinking about and critically evaluate a notion, appreciate one's own values and also those of the others, and foster better decision-making and also to maintain effective communication so that the theoretical concepts ultimately find their ways into behavior and practices.

The system of culture prevalent is a vicious one, always trying to put adversities in the path of development of oneself. Thus the educational practices should be such that can train us to deal with them. By using our native spontaneity we should respond to the unfavourable forces honestly trying to find out the goods out of the negative ones. One should judge his/her actions from a wider context so that a clear picture of the encountered problem comes out, thus creating a space for transcending the agony dwells at the core of the heart.

Tolerance regarding the viewpoints of others is an essential part to deal a tranquil life on earth. These views can be of any form – about the politics or religion or culture and so forth. Free and constructive argument is necessary to provide ample space for the exchange of ideas that can grow a healthy environment worth living. It should be institutional practice to establish a culture of service to all fellow beings not only in words but also in actions. This can enlarge the moral and spiritual outlook of the students. The feeling of oneness is a must in spiritual context.

Creating discrimination free atmosphere is a real demand. The needy should be supported in this respect. It is the duty of educational activities to prompt the proper orientation which could broaden the outlook of

learners that is able enough to discriminate between the right and the wrongs. A sense of mutual understanding is to be promoted that could bear the fruit of healthy living in near future.

Conclusion

In today's tumultuous situation we badly need something that foster the way of better living. Spiritual Intelligence shows us the way to live compassionately with others focusing on the co-creation of a healthy environment free from the "diseases of meaning". Education system may be proved immensely helpful as it has the capacity to nurture people focusing on both their inner and outer nature.

It is worth to remember that no student can neglect the influence of educational institutions (also that of the home and society). Thus the importance of education is great in creating sustainable future as education, undoubtedly, is the most effective medium to impart values and morality that can fabric the mental framework with so much shades that could easily weaken the daily hackles of life. If the promotion of Spiritual Intelligence is done through intellectual educative processes then it would be of immense helpful to facilitate the next generation with a world that has a unique solidarity to make the life worth living.

References

Zohar, D.and Marshall, I. (2012-04-12). Spiritual Intelligence: The Ultimate Intelligence (Bloomsbury Paperbacks) Bloomsbury Publishing. Kindle Edition.

Mohapatra, R.L. (2010) The Essence of Spiritual Intelligence in Fourth Wave of Education. *Sikshachintan Vol.* 4, pp.119-125.

Frankl, V. E. (1984). Man's search for meaning: An introduction to logotherapy.

Singh, M. and Sinha, J. Impact of Spiritual Intelligence on Quality of Life

Wechsler, D. (1940). Non-intellective factors in general intelligence. *Psychological Bulletin, 37,* 444-445.

Salovey, P., and J. D. Mayer. 1990. Emotional intelligence. *Imagination, Cognition and Personality* 9.3: 185-211

Zohar, D. and Marshall, LSQ – Spiritual Intelligence, the ultimate intelligence http://www.alisonmorgan.co.uk/Zohar%202000.pdf

Challenges and Benefits in ICT Adoption in Indian Higher Education System: an Overview

Maumita Chaudhuri

Abstract

Technology will play a bigger role in transforming higher education imparted by universities to the next level. Use of Information and Communication Technologies for promoting education and development has always been a part of policy and plan documents on education. The innovative use of IT/ICT is believed to be a game changer that can significantly strengthen India's higher education system and propel the country into becoming "Knowledge Superpower". The paper besides analyzing the different government initiatives, also highlights the challenges before the Indian higher education sector and proposed the remedial measures for sustainable development through adaptation of ICT.

Assistant Professor of Journalism & Mass Communication & Joint Coordinator, Department of BBA, Barrackpore Rastraguru Surendranath College, West Bengal; E – Mail: maumita@gmail.com

Introduction

The main governing body at the tertiary level is the *University Grants Commission*, which enforces its standards, advises the government, and helps coordinate between the center and the state. Indian higher education is decentralized with separate councils responsible for the regulation of different institutions. As of 2011, the institutions break up in India is as below:

Institution Type	Count
Central Universities	42
Deemed Universities	130
Institutes of National Importance	33
Institutions established under State Legislations	5
State Private Universities	73
Private Universities	90
State Universities	275
Autonomous Colleges and Affiliated Colleges	31,000 (approx.)

(UGC and MHRD Reports)

Some Quick Facts about Indian Higher Education

☐ There are 14.6 million students undergoing Higher Education in India as of 2011.

☐ There has been a significant rise in enrollment from rural population in Higher Education. The GERs in rural areas have been rising steadily and expected to reach 12.84% by 2020.

☐ A growing number of women are expected to enroll in Higher Education Institutes. Currently over 6.1 million women are enrolled in Higher Education

and is expected to grow to 12.15 million by 2020.

☐ There is a high demand from working professionals for Executive Education programs.

☐ Three Indian universities were listed in the *Times Higher Education* list of the world's top 200 universities — Indian Institutes of Technology, Indian Institutes of Management and Jawaharlal Nehru University in 2005 and 2006. Six Indian Institutes of Technology and the Birla Institute of Technology and Science - Pilani were listed among the top 20 Science and Technology schools in Asia by *Asia Week*. The Indian School of Business situated in Hyderabad was ranked number 12 in global MBA rankings by the *Financial Times of London* in 2010 while the All India Institute of Medical Sciences has been recognized as a global leader in medical research and treatment. (UGC Higher Education in India 2008 - 11th Five Year Plan Vol. II)

Spends in Higher Education

☐ Current estimates indicate that spends on Higher Education in India to be nearly INR 46,200 crores.

☐ Private institutions account for majority of the spend

- Public Institutions (8%)
- Private Institutions (92%)

☐ Majority spends in public are for general courses while spends in private institutions are for professional courses.

☐ Education is the 3rd largest expenditure group for an average Indian household.

☐ Nearly 55% of the Indian middle class households have started saving for higher education of their children. (MAX New York Life: NCAER Survey)

Challenges in Indian Higher Education

The 2011 Ernst & Young - FICCI report on Higher Education noted the following as some of the key challenges for India in terms of Access, Equity and Quality of Higher Education.

1. Insufficient infrastructure to meet the growing demand for higher education. In 2011, 14.6 million students enrolled in higher education in India. By 2020, 40 million students will have to be enrolled if GER target of 30% has to be met. This implies an additional capacity of over 25 million seats would be required within the next decade.

2. There is wide disparity in Higher Education GER across states, urban vs. rural areas, gender and communities that have to be bridged.

3. Faculty shortage (45% professor and 53% lecturer positions were vacant in 2007-08); deficient physical infrastructure, ill-equipped libraries and outdated curricula continue to plague our higher education system. The following sections will try to answer "How IT/ICT is acting as an enabler and a catalyst to fuel the growth of Higher Education in Colleges and universities". Also, the challenges and opportunities ahead of the Higher Education Institutions are discussed in brief.

IT Adoption in Indian Universities

Use of ICT for promoting education and development has always been a part of policy and plan documents on education. At the moment, the decision makers at both central and state are favoring inclusion of new computer and internet based IT/ICT in education (adopting cloud based virtual classrooms/universities and m Learning initiatives). The Government of India has implemented several national as well as state specific schemes that run concurrent to large number of privately led IT initiatives at school and higher education levels. However there is significant disparity in ICT usage between institutions in urban areas and those in semi-urban/rural parts of the country. The quality of ICT infrastructure and its use is limited in a large percentage of Autonomous/Affiliated Colleges especially due to lack of trained IT staff, connectivity issues and shortage of funds. The rapid increase in mobile penetration and evolution of 4G wireless technologies such as WiMax/LTE it is expected that

[...] issues can be resolved by the [...] five-year-plan (2012-2017) in semi- [...] of the country. The Government of [...] new initiatives to rope in the private [...] low cost compute infrastructure for [...] and research to colleges similar to [...] initiative for school children.

[...] National policy on Education framed in [...] and modified in 1992 stressed upon employing [...] Technology to improve the quality of [...]. The Vision, Mission and the Policy goals [...] the policy are:

Vision

The IT/ICT policy in Education aims at preparing [...] to participate actively in the establishment, [...] and growth of a knowledge society leading to all round socio-economic development of the nation and enhanced global competitiveness.

Mission

Device, catalyze, support and sustain IT/ICT and enabled activities and processes in order to improve Access, Equity and Quality.

Policy Goals

To achieve the above, the IT/ICT policy in Education will work towards,

☐ Creating an environment in the states to develop IT/ICT knowledgeable community.

☐ Creating an IT/ICT literate community who can deploy, utilize, benefit from IT/ICT and contribute to nation building.

☐ Create an environment of Collaboration, Cooperation and Sharing, conducive to the creation of demand for an optimal utilization of and optimum returns on the potentials of IT/ICT in school/higher education.

☐ Promote universal, equitable, open and free access to state-of-the-art IT/ICT enabled tools and resources to all students and teachers.

☐ Promote development of localized quality content and enable students and teachers to partner in the development and critical use of shared digital resources.

☐ Promote development of professional networks of teachers, continuing education of teachers; guidance, counseling and academic support to students.

☐ Promote research, evaluation and experimentation in IT/ICT tools and enabled practices in order to inform, guide and critically utilize the potentials of IT/ICT in education.

☐ Motivate and enable wider participation of all sections of society in strengthening education through appropriate utilization of IT/ICT.

Following are a few case studies that clearly show the growing footprint of IT/ICT in Higher Education.

a. The *National Mission on Education through Information and Communication Technology* (NMEICT) is envisaged as a centrally sponsored scheme to leverage the potential of IT/ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any-time any-where mode. Content generation and connectivity along with provision for access devices for institutions and learners are the major components of the mission.

b. Creation of e-content for 996 courses in Phase-II in Engineering, Sciences, Technology, Humanities and Management has been undertaken by IIT Madras.

c. Consortium for Educational Communication has been tasked with creation of e-content for 87 undergraduate courses.

d. UGC has cleared a proposal to publish e-content for 77 post-graduate courses.

e. **National Program on Technology Enhanced Learning (NPTEL)**, a joint initiative of the IITs and IISc provides E-learning through online Web and Video courses in Engineering, Science and Humanities streams aiming to enhance the quality of Engineering education in the country by providing free online courseware.

f. **The National Knowledge Network (NKN)** and

Connected Digital has launched an initiative to cover 1,000 institutions besides providing digital campuses, video-conference classrooms, wireless hotspots, laptops/desktops to all students of professional/ science courses and Wi-Fi connectivity in hostels. A major development during the year has been the launch of *Aakash*. An amount of Rs. 47.72 crore has been released to Indian Institute of Technology, Rajasthan, for the projects pertaining to acquisition and testing of low cost computing devices under the scheme of *NMEICT*.

g. Using the A-View software developed under the NMEICT, there has been a 14 day teachers' empowerment program conducted for batches of 1,000 teachers at a time by IIT Bombay and are contemplating on a plan to conduct a 2-week long teacher training program for a batch of ten thousand teachers at a time. This program, developed under NMEICT, could become the bedrock for successful implementation of the proposed National Mission on Teachers.

h. Under the N-List program of INFLIBNET, being run under NMEICT, lakhs of e-books and thousands of high quality paid e-journals have been made available to colleges and universities with a view to inculcating research culture in teachers and students. The model needs to be scaled up for maximizing the coverage and productive usage of the resources made available.

i. IIT-Bombay has started the program of CDEEP (Centre for Distance Engineering Education Program) as emulated classroom interaction through the use of real time interactive satellite technology (Centre for Distance Engineering Education Program, India, 2007).

j. The launch of EDUSAT brought satellite connectivity to large parts of rural India. Indira Gandhi National Open University (IGNOU) is leveraging satellite, television, and Internet technologies to offer online courses.

k. Private sector participation like HP's *Technology for Teaching Grant* has transformed the ICT infrastructure in institutes like Anna University and Jadavpur University.

l. In 2007, the Distance Education Council (DEC) allowed all premier institutes in the country to offer online courses. Since then IIM-C, IIM-B, IIM-K, XLRI and other management institutes have started offering courses in association with private players like Hughes, Reliance, NIIT, etc.

m. IIT-Kanpur has developed Brihaspati, an open source e-learning platform.

n. An increasing number of private players like Hughes Global Education, Manipal Education Group, Centum Learning, UEI Global, Shiv Nadar University, etc. are offering online education courses in association with leading Central and State Universities leveraging with good ICT infrastructure.

Technology Trends in Indian Universities

Technology will play a bigger role in transforming higher education imparted by universities to the next level. The tools help to create a social, highly collaborative and personalized environment with innovative solutions that will enhance the way students learn, communicate & collaborate and study both on and off campus. Some of the exciting Technology trends in Indian Universities are:

Digitization of Books (E-Text Books)

There is an increased trend towards creation of a digital repository of books to create a digital learning environment for students. The digital version of the books embedded with text, pictures along with video, simulations and visualizations help students learn the concepts in an interactive way. The National mission on Education through ICT plans to generate new online course content for UG, PG and Doctoral education. Efforts are already underway to prepare course content for 130 courses (UG and PG).

Content Delivery using IT/ICT

Higher Education is purely a content driven play

where educational content is delivered through innovative use of ICT. There is an increased trend in higher education institutes to render content through Radio, TV and Satellite.

Open Education Resources

Many Indian universities are contemplating Technology enabled free access of education resources. AICTE - Indian National Digital Library in Engineering & Technology (AICTE - INDEST) is a consortium set up by the Ministry of Human Resource to enhance greater access and generate annual savings in access of bibliographic databases. UGC has also launched its Digital Library Consortium to provide access to peer reviewed journals and bibliographic databases covering subjects such as arts, humanities, technology and sciences.

Virtual Technical University

The National mission on Education through ICT is working on a war foot to establish a virtual technical university to impart training to UG/PG students along with new teachers.

Mobility

With the proliferation of mobile phones on campus, colleges everywhere are compelled to capitalize on feature-rich phones that are capable of much more than just voice calls. Tasks like administration, sharing class notes, downloading lectures, instant messaging, etc., are possible anywhere cell phone service is available. Mobile phones are also being used to access computer files from remote locations. With services like "Soonr", students who have forgotten to bring an assignment to class can use their cell phone to access the completed work on their home computer and show it to the professor.

Social Learning

The emergence of Web 2.0 and social networking such as blogs and wikis, as well as new online video repository and delivery websites such as YouTube,

iTunes U and Big Think is influencing a new trend in higher education. The emergence of smart phones has enhanced mobile learning (referred to as m-learning). These technologies create new channels for content delivery, online video expansion and podcasting. Also, the adoption of virtual reality websites such as "Second Life" has provided higher-education institutions with new venues for class gatherings and learning. A combination of Web 2.0 tools viz., Blogs, Wikis, Podcasts, Mashups, and Social Networking Communities are transforming the traditional learning environment into something more social and personalized. While traditional Learning Management Systems (LMS) like Blackboard, Sakai, Moodle or Web CT are course-centered and driven by faculty, the new trend in education is to create a "learner-centric" system.

IT/ICT Adoption in Indian Universities - Challenges

The key challenges affecting the utilization of IT/ICT in Indian Higher Education fall broadly into the following categories:

☐ Lack of required Knowledge and Technology readiness. India faces the challenge of low technology and people readiness in order to realize the true potential of ICT in higher education with penetration of computers and internet, especially in the rural areas being extremely poor.

☐ Implementation challenges that have contributed to the failure of past initiatives. Penetration of ICT systems in higher education institutions is extremely poor.

☐ Linguistic barriers to dissemination of knowledge. There are linguistic barriers that need to be overcome to improve the ICT adoption and penetration.

IT/ICT Benefits to Universities

The innovative use of IT/ICT is believed to be a game changer that can significantly strengthen India's higher education system and propel the

country into becoming "Knowledge Superpower". The innovative use of IT in Higher education addresses the three fundamental challenges of Access, Equity and Quality. The adoption of IT/ICT in higher education facilitates the following:

☐ Improving the access to the system through online education.

☐ Improving the quality of teaching especially across remote locations.

☐ Increasing transparency and strengthening systems, processes and compliance norms in Higher Education Institutes.

☐ Measure students learning participation and effectiveness.

☐ Analyze student behaviors to maximize students' involvement, optimize retentions, and improve placements.

☐ Analyze students' performance, placement, application volume, website analytics, and social media metrics for brand audit Apart from this IT/ICT can perform multiple roles in Higher Education to benefit all stakeholders.

☐ Mode of Course Delivery: Distance Learning with course delivery through Internet (virtual class rooms) satellite and other mediums.

☐ Provide a Collaboration Platform: ICT provides a platform linking universities and other agencies for collaborative research on many technology projects and course content development.

☐ Administrative Support Functions: ERP systems implemented in universities help complete student tracking and management aspects including admission, enrolment, fees payment, examination and graduation etc.

References

Making the Indian Higher Education System Future Ready - FICCI Higher Education summit 2009; An Ernst and Young Report.

Wikipedia - Higher Education in India; http://en.wikipedia.org/wiki/Higher_Education_in_India

A report to the people on Education; 2010-11, Ministry of HRD, Government of India.

ICT in indian universities and colleges; A report by Neeru Snehi.

National Policy on ICT in Education; Ministry of HRD, Government of India.

Educational Technology, http://en.wikipedia.org/wiki/Education_Technology.

IT/ICT Adoption in Indian Higher Education, a report by calsoft labs.

Green chemistry: best practices in quality enhancement and sustenance

Aparna De[1], Nilay Karchaudhuri[2]

Abstract

Sustainability and green chemistry is the challenge of the century. Worldwide initiatives are focusing on a more environmentally responsible form of chemistry. The essential aspect of green chemistry teaching is not only the study of theoretical principles but obviously its applications in the practical field. Present paper highlights the different aspects of green chemistry and the methods of teaching for quality enhancement and sustenance.

Introduction

"I feel sorry for people who don't understand anything about Chemistry. They are missing an important source of happiness!"

Linus Pauling

Chemistry education in the greener perspective is one of the key steps to meet the challenges of more sustainability in the development of our society. Modern chemistry education is challenged both by the social aim of a sustainable development in general as well as from the call for green chemistry strategies in chemical research and industry.

The future generation of our society must be enlightened by the proper education for achieving the goal of sustainability. So the years between 2005 and 2014 had been declared as a worldwide decade of education for sustainable development by the United Nations. The central focus of this program was to prepare the younger generation to become responsible citizens in the future.

Green Chemistry

Today, the worldwide initiatives are focusing on a more environmentally responsible form of chemistry. Teaching chemistry in the context of real world issues is a way to motivate students for help in shaping future society in a sustainable fashion. One of the most valuable contributions that chemistry can make is to prepare students to deal rationally with these issues as chemistry - literate citizens in a world in which they are able to confront new problems intelligently. For this purpose, a new course is time-consuming to prepare and may not find ample room within an already crowed curriculum. In

---

1 *Associate Professor of Chemistry, Gokhale Memorial Girls' College, West Bengal; E Mail:* aparnadekc@gmail.com

2 *Assistant Professor of Chemistry, Barrackpore Rastraguru Surendranath College, West Bengal; E Mail:* nilaykarchaudhuri@gmail.com

comparison, the "greening" of the already existing processes in the course is advantageous in terms of implementation. Moreover, fewer resources and modifications are required in terms of the administrative costs.

Green Chemistry: teaching & learning

The essential aspect of green chemistry teaching is not only the study of theoretical twelve principles but obviously its applications in the practical field. So, assignments can be included in the course that requires the students to critique several synthesis plans towards a real world molecule using sustainability principles. Students must be motivated to think green, showing different examples of greener approach in chemistry. Actually chemistry education shows great potential for bettering the level of general educational skills among students in the sense of participatory learning. Addressing and understanding the dilemmas and challenges of sustainable chemistry requires skills in critical thinking and problem solving.

The greener approach in chemistry education should be embedded in the entire curriculum and not merely be presented as a separate topic. The existing laboratory experiments can be shifted towards greener paths by several alternatives like shifting from the macro to the semi micro analysis for qualitative analysis of inorganic salts, replacing hazardous chemicals in analysis by better reagents and using catalysts for stimulating reactions. If students are able to recognize, compare and reflect upon the altered strategies they can learn how to minimize the use of resources, maximize the effects and protect the environment. The overall objective of the curriculum should be to create a learning environment that allows students to interact physically and intellectually with instructional materials through relevant hands on experiences and through relevant minds-on and inquiry-oriented activities. Adopting this approach leads to student

discovery that green chemistry is all about decision making - by its nature, it is often an indefinite and ambiguous field. The quest for "greening" reaction is an interactive process that is never fully reached e.g. the procedure for nitration of aromatic compounds can be studied. The traditional electrophilic nitration of aromatic compounds is one of the prime single reactions in the chemical industry as the nitrated products are versatile intermediates for fine chemicals and pharmaceuticals. The conventional mixed acid method has a serious disadvantage of disposal of the spent acid reagents considering the environmental impacts. In order to address these problems several alternative methods of nitration have been developed.

In 2000, a rapid and convenient method of nitration of aromatic compounds by bismuth nitrate supported on montmorillonite under solid phase conditions, at room temperature was reported. The superiority of this method over others includes applicability to a wide range of substrates, ready availability of nitrating agent, a very rapid reaction with high overall yields as well as no need of strong acids.

In 2006, another method of nitration of phenolic compounds was reported using microwave irradiation exploiting a mixture of calcium nitrate and acetic acid - an efficient nitrating acid mixture. This procedure is compatible with the green chemistry approach, because calcium acetate, the byproduct of this reaction and unreacted excess calcium nitrate can be useful agrochemicals rather than waste chemicals.

There are many other methods approaching towards greener path.

Green chemistry represents the pillars that hold up our sustainable future. Because green chemistry is rapidly becoming the wave of the future, it is very important that the students should be exposed to green chemistry in the mainstream

courses that they encounter in chemistry curriculum. This would in turn help to achieve sustainable environment devoid of prevalent environmental problem that impart negatively on earth's capacity. In order to deal with the enormous damage to the environments due to activities of chemical industries and move within the specific and broader educational contexts of maintaining the environment to better support us, there is the need to integrate green chemistry in chemistry curriculum.

It is now obvious that chemical science must be turned away for emphasis upon the exploitation of limited resources and the production of increasing amounts of products that ultimately end up as wastes and towards the application of chemistry in ways that provide for human needs without damaging the earth support system upon which all living things depend. Chemical science and industry had to move steadily in the direction of environmental friendliness and resource sustainability. The practice of chemistry in a manner that maximizes its benefits while eliminating or at least greatly reducing its adverse impacts is good justification of green chemistry.

In addition to the above, there are other justification for the incorporation of green chemistry into curriculum - necessity, responsibility, interest and efficiency.

- It is necessary to minimize man-made interference in the natural environment
- It is responsible to have the potential of saving environment
- It is interesting to develop alternative routes to traditional chemical practices
- It is efficient for developing benign, non-wasteful alternatives to traditional chemistry

Green chemistry is not intended to be a solo discipline, but rather a means for conducting science in a responsible manner. Existing materials should be taught in a new way to incorporate key concepts into the curriculum to make chemistry inherently green. It should be borne in mind that the present curriculum material is already overburdened, crying for trimming down. So the existing curriculum should be reviewed to accommodate this. More refinement can be done at that point. It is recommended that stakeholders in educational industries and environmental protection agency take necessary steps for implementation. The major benefit of catching young is to make youngsters imbibe environmental consciousness accounting early in life.

Green Chemistry & Environment

There is a long term benefit of achieving sustainable environment devoid of prevalent environmental problem occasioned by incessant climate change and other green house effects. The benefits of green chemistry are:

- Teaches objective evaluation of hazards
- Provides students with a rational procedures for analyzing/minimizing hazardous
- Empowers students to use chemistry to solve environmental problems
- Change the way students and society view chemicals, chemistry and chemists. The barriers of green chemistry are :
- Lack of educational materials
- Overcrowded curriculum
- Perceived lack of rigor
- Inertia

Being green has long been a battle cry of environmental activists and being green has become an important marketing tool for business.

Green chemistry is actually the utilization of a set of principles that reduces or eliminates the use generation of hazardous substances in the design, manufacture and application of chemical products. It is all about -

- Waste minimization at source
- Use of catalysts in place of reagents
- Use of non-toxic reagents

- Use of renewable resources
- Improved atom efficiency
- Use of solvent-free/recyclable environmentally benign solvent systems

Green chemistry follows following waste management hierarchy.

Waste Management Hierarchy

- Source Reduction & Reuse
- Recycling / Composting
- Energy Recovery
- Treatment & Disposal

The following changes needed in education to incorporate green chemistry:
- Need to train new scientists in these techniques
- Replacement of yield with atom economy
- Modification of organic and inorganic chemistry laboratory and experiments
- Basic concepts of chemical toxicology and molecular basis of hazards

Promotion of Green Chemistry
- Fund research to stimulate greener approach
- Train tomorrow's chemist
- Enact policies to support green chemistry
- Arrange awareness program/conference
- Provide green procurement highlights
- Support healthy competition among the companies to substitute hazardous materials by benign one.

Role of Government
Government can also provide a positive push for the companies to use safer chemicals by embedding the "Substitution Principle" within legislation and planning programs. The substitution principle is the requirement to use safer alternatives for any hazardous chemicals when a safer alternative is available. Without such policy the development of safer chemicals in the laboratory may never see commercial development and use.

Examples of green chemistry accomplishments listed below illustrate how green chemistry impact wide array of fields and offer a pathway to better world. To manufacture computer chips, many chemicals, large amounts of water and energy (fossil fuels!!!) are required. A new process has been developed that uses supercritical carbon dioxide in one of the steps of chip preparation and it significantly reduces the uses of chemicals, energy and water. A second generation green synthesis of *sitaglipitin*, a treatment for type-2 diabetes has been developed exploiting an enzymatic process that reduces waste, improves yield and safety, and eliminates the need of metal catalyst. *Simvastatin*, a drug for treating high cholesterol, is synthesized utilizing engineered enzyme reducing large amounts of hazardous reagents and large amounts of toxic waste. A biocatalysts company optimized both the enzyme and the chemical processes. The process is cost effective and meets the needs of the customers. A method has been developed to prepare water bottles where microorganisms convert cornstarch into a resin that is as strong as the rigid petroleum-based plastics. A mixture of soya oil and sugar replaces fossil fuel derived paint resins and solvents that are safer to use and produces less toxic waste.

Sustainability
"The first rule of sustainability is to align with natural forces, or at least not to try to defy them."
Sustainability and green chemistry is the challenge of the century. We must blend green chemistry and sustainability in chemistry education as a best practice for quality enhancement.

References

Liu.J., (2009), Education for Sustainable Development in Teacher Education, Asian school Science, 5(5), 46-49.

Baggini, J., (2005), Education Review, 18(2), 5-11.

Friedman, I.A., (1999), Educational and Psychological Measurement, 57-76.

Hilferty, F., (2008), The Australian Educational Researcher , 35(3), 53-70.

Demirkasimoglu, N., (2010), Procedia Social Social and Behavioral Sciences, 2047-2051.

Author Guidelines

- The Journal accepts papers in English language only except the papers of Bengali language and literature.
- The blind peer reviewed journal welcomes original research paper in all areas of knowledge.
- Papers should be original in nature should not normally exceed **3000 words.**
- All manuscripts should be formatted in 12-point Times New Roman font on A4 size paper and should be double-spaced. Margins should be one inch from all sides.
- Papers should reach as MS Word (doc/docx) file only through email at **vision@brsnc.org**.
- Decision of reviewer is final and no intimation will be given if the paper is being rejected.

Structure of a Paper

Title: The title should be such as to be useful in indexing and information retrieval. If a paper forms part of a series, a sub-title indicating the aspects of the work covered in the paper should be provided.*

Authors Name & Affiliation: Author(s) name should accompany his/her designation, affiliation and e-mail ID.*

Abstract: The abstract, not exceeding 200 words, should indicate the scope and significant content of the paper, highlighting the principal findings and conclusions. Keywords are to be given beneath the abstract.*

Introduction: The introductory part should be brief, have no heading and state precisely the objective in relation to the present status of knowledge in the field. Review of the literature should be restricted to essential background only and provide justification for the research question.*

Objectives & Scope: The objectives and scope of the paper should be stated explicitly.

Materials and Methods: The nomenclature, the sources of materials and the procedures should be clearly stated. New methods should be described in sufficient detail, but if the methods are already well known, a mere reference to them will do; deviations, if any, should, however, be given.

Results: Only such data as are essential for understanding the discussion and main conclusions emerging from the study should be included.

Illustrations: The number of illustrations should be kept to the minimum and numbered consecutively in Arabic numerals.

Tables: Each table should have an explanatory title and should be numbered in Arabic numeral.

Acknowledgement: Acknowledgement (if any) should be brief and for special assistance only, not for providing encouragement and routine facilities et cetera.

References: Responsibility for the accuracy of bibliographic references rests with the author. Referencing should be according to **APA (6th Ed) Style Manual**. Sample of the recommended style is as follows:*

For Periodicals

Steeleworthy, M., & Dewan, P. (2013). Web-based citation managgement. *Partnership: Canadian Journal of Library & Information Practice and Research, 8*(1), 1–6.

Thelwall, M., & Zuccala, A. (2008). A university-centred European Union link analysis. *Scientometrics, 75*(3), 407–420. http://doi.org/10.1007/s1 1192-007-1831-8

For Books

Dixon M & Webb E C (1964) *Enzymes*, 2nd edn, Longmans Green, London, 565-567.

Bracket J (1967) in *Comprehensive Biochemistry* (Florkin M & Stotz E M, eds), Vol. 28, pp. 23-54, Elsevier, Amsterdam

Laidler K J & Bunting P S (1973) *The Chemical Kinetics of Enzyme Action*. 2nd edn. Clarendon Press. Oxford, Vol. 2. Chapt. 4, pp. 255-278.

Sjoberg, L., & Gentry, C. (Eds.). (2011). *Women, Gender, and Terrorism*. University of Georgia Press, Athens. Retrieved on 23rd March 2014, from http://www.jstor.org/stable/j.ctt46nnjp

Hennessy, J. L., & Patterson, D. A. (2012). *Computer architecture: a quantitative approach*. Elsevier, California. Retrieved on 23rd March 2014, from http://doi.org/10.1.1.115.1881

For Reports, Non-serial symposia & Proceedings

Harding B W, Whysner J, Cheng S C & Ramseyar J (1970) *Proceedings of the Third International Congress, Hormonal Steroids*, Hamburg, September 1970, pp. 294-300

For Thesis

Francese, E. (2012). *Reference management software as digital libraries : a survey at the University of Torino*. Akershus University College of Applied Sciences.

*Mandatory inclusions

BRSN Vision

Subscription From

Name :..

Affiliation / Employer :..
(In case of Individual subcriber)

Preferred Mailing Address :..

....

City :... State............................

Country:.. Pincode.........................

Email:... Phone:..........................

Subscription Rate :

	Individual	Institutional
1 Year	Rs. 250	Rs. 500
5 Years	Rs. 1000	Rs. 2000
Payment Details:	In Cash	By Cheque/ Draft

Drawn on : ....

Cheque/Draft no.. Dated:...........................

Signature :

Date:

Cheque / DD should be drawn in favour of 'Barrackpore Rastraguru Surendranath College'.

Send to : Executive Editor, BRSN Vision, Barrackpore Rastraguru Surendranath College, 85 Middle Road & 6, Riverside Road, Barrackpore, Kolkata-700 120, West Bengal, India.
E-mail : vision&brsnc.org