Role Of Icts In Pedagogy For Quality Teaching Learning And Teachers' Education Scenario In Manipur

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Abstract

The increasing global move toward knowledge societies, wherein knowledge is the primary production resource rather than capital and labour, has placed increasing emphasis on the need to ensure that individuals are educated and become skilled participants in society and the economy. ICT is a valuable tool for researching, composing, responding, viewing and representing knowledge and regarded as an essential means to support the achievement of genuine knowledge societies, often compelling worldwide to adopt strategies to encourage its integration into education systems. Literacy in ICT is fundamental to life in our modern technological society. ICT is a valuable tool to enhance teaching and learning. For teachers ICT is a professional resource, a mode of classroom delivery and a source of valid and valuable text types. For students, ICT provides opportunities to communicate more effectively and to develop literacy skills including skills in critical literacy.

Key words: Knowledge, research, education system, classroom delivery, communication.

Introduction

Conventional teaching-learning processes are undergoing a paradigm shift. Focus of instruction is now on education programmes/ practices that promote competency and performance. Such curricula tends to require access to variety of information sources, information forms and types; student centered learning settings based on information access and inquiry; learning environments centred or problem-centred and inquiry-based activities, authentic settings and examples; and teachers as coaches and mentors rather than content experts (Oliver, 2002). The shift towards development of educational programmes whose curricula is competency and performance-based is well supported by and encouraged by the emerging instructional technologies. In addition, ICTs lend themselves strongly to educational programmes offered by open and distance learning universities and provide a choice to students who are otherwise unable to attend the campuses. Integration of ICTs would thus lead to quality learning settings not only within the classrooms/ institutions but also through online distance learning modules. Some of the Indian universities/ institutions namely IIMs, IGNOU, BITS Pilani, MAHE, NIIT are already offering online programmes and many more have emerged in the recent period. Although such a learning module will lack face-to-face teacher-learner interaction but at the same time provide a participatory experience of higher order learning.

Another important aspect is development and availability of learning modules/ and content material. The development of e-content for encouraging and supporting independent learning has to be based on processes of constructing knowledge as promoted by constructivist theories. The emergence of ICTs has enabled the availability of knowledge contained in books, documents, research literature and other sources online for instance the online libraries such as Questia. Some western foreign universities have allowed some of their titles in libraries for digitization in their collections such as University of Michigan (seven million titles), Harvard University (40,000 titles), Stanford University, Oxford University (6.5 million books) and the New York Public Library (nearly 20 million titles) digitized books in their collections and make them accessible via Google, Print (Carlson & Young, 2004). Presently many foreign universities such as Coventry University, UK have initiated online learning across all modules and for all students (Beaty and Deepwell, 2005). Many universities such as Stanford University provide day to day instructional lessons/materials online in many engineering programs.

Apart from enhancing student's learning experience, role of ICTs in capacity building/ training of educational personnel has very large potential. National level institutes can provide leadership role in enhancing technical and managerial manpower in different disciplines through ICT networks and collaborations. Technology facilitated learning would result in preparation of staff regarding innovative pedagogic methods, new ways of learning and interacting, easy sharing of new practices among teaching community and result in widening the opportunities for their participation. The capabilities of competent and trained teachers/ academic experts can be made available to larger audiences/ students through flexible and virtual settings.

Innovative Approaches for Teaching:
ICTs have the potential to drive innovative and effective ways of teaching-learning and research. The inclusion of learning tools, easier use of multimedia or simulation tools, easy and almost instant access to data and information in a digital form which allows for computations and data processing generates possibilities which were otherwise not feasible. The possibility to diffuse these innovations and complement the learning content to improve quality in higher education through innovative pedagogic methods is high. The focus on ICTs to back quality research through utilization of rigorous research methodology and in-depth analysis is the call of the hour.

E-learning:
E-learning allows higher participation and greater interaction. It challenges the concept that face-to-face traditional education is superior to it (Bhattacharya and Sharma, 2007). The web and the Internet is the core ICTs to spread education through e-learning. The components include e-portfolios, cyber infrastructures, digital libraries and online learning object repositories. All the above components create a digital identity of the student and connect all the stakeholders in the education. It also facilitates inter disciplinary research. Plomp et al (2007) state that the experience of many teachers, who are early innovators, is that the use of ICT is motivating for the students as well as for the teachers themselves. Bottino (2003) and Sharma (2003) mention that the use of ICT can improve performance, teaching, administration, and develop relevant skills in the disadvantaged communities. It also improves the quality of education by facilitating learning by doing, real time conversation,

delayed time conversation, directed instruction, self-learning, problem solving, information seeking and analysis, and critical thinking, as well as the ability to communicate, collaborate and learn. Casal (2007) mentions that ICTs also provide a platform for sharing information and knowledge; this can be used for the betterment of programme delivery in terms of replication of best practices. It also helps researchers by provision of information, networking, online journals, libraries and data. The possibility of real time interaction in all the different aspects of the education system like teaching, collaboration, debates etc hold great promise for the future.

Evidence through practical experience in the world indicates that investing in an ICT experience contributes mainly to increasing human and knowledge capital, which benefits the industry as well. Employers gain from the increased knowledge and skills of staff without releasing them for long periods (Barratt, 2006). In addition, investment in production of ICT is a more effective tool for development of the whole society. Research findings show that technology can support pedagogical, curricular, and assessment reforms, which intend to support the process of knowledge creation. Students and teachers plan their learning activities and build on each other's ideas to create new knowledge. It also facilitates monitoring of their progress in understanding and preparation for lifelong learning and participation in the information society (Kozma, 2005; Bhattacharya and Sharma, 2007). Besides cost effectiveness, research has proved that ICT is most effective to tackle problems like expanding number of students in each class (Fluck, 2003). ICT enabled distance education provides environmental benefits, as there is a major reduction in the amount of student travel. Economies of scale in utilisation of the campus site are generated. Student housing is not needed which further saves costs. However, cost of providing the distance education depends on several factors, which include: geography and communities targeted, breadth of courses and class size. It also depends on the technology used; amount of resources deployed in producing course materials as well as how frequently they are updated.

E-learning allows delivery, dialogue and feedback over the Internet. It allows mass customization in terms of content and exams. E-education can provide access to the best gurus and the best practices or knowledge available (UNESCO, 2002). It is possible to leverage the online environment to facilitate teaching techniques like role-play across time and distance (Wishart, 2007). It can also facilitate the development of scenarios, which can be rarely witnessed in practice.

Benefits of ICT in Education:
ICT can play a valuable role to monitor and log the progress of the students across time, place and varied activities. Mooij (2007) states that differentiated ICT- based education can be expected to provide greater reliability, validity, and efficiency of data collection and greater ease of analysis, evaluation, and interpretation at any educational level. In absence of ICT, most of the responsibility of teaching and learning lies on the teachers. However, with the help of ICT one can transfer the responsibilities to the students so that they can self-manage. It helps to individualize the teaching or guidance method as per the student's need (ibid). It also boosts the confidence level and the self-esteem of the students who acquire the ICT skills through the process of being exposed to such kind of learning (Casal, 2007). Mooij (2007) also puts forth the view that ICT-based registration, evaluation, and administration helps to link different levels of information and facilitate an overall view of the whole

educational setup. It facilitates the evaluation and examination of the learning process and results by the students and the parents in a flexible and convenient way. The globalization process has also created a large market of offshore students. To reach them, information technology is the only convenient medium, which can offer education as a service (Collins et al, 2001; Bhattacharya and Sharma, 2007). It increases education provision substantially and can contribute to mass education. It also creates competition among the institutions for providing education and hence improves the quality. To summarize, the following table shows the main benefits of using ICT in education to the various stakeholders:

Table 1: Benefits of ICT in education to the main stakeholders

Stakeholder	Benefits
Student	Increased access. Flexibility of content and delivery. Combination of work and education. Learner-centred approach. Higher quality of education and new ways of interaction.
Employers	High quality, cost effective professional development in the workplace. Upgrading of employee skills, increased productivity. Development of a new learning culture. Sharing of costs and of training time with the employees. Increased portability of training.
Governments	Increase the capacity and cost effectiveness of education and training systems. To reach target groups with limited access to conventional education and training. To support and enhance the quality and relevance of existing educational structures. To ensure the connection of educational institutions and curricula to the emerging networks and information resources. To promote innovation and opportunities for lifelong learning.

Source: (UNESCO, 2002)

Potential drawbacks of using ICT in education:
While using ICTs in education has some obvious benefits, ICTs also bring challenges. First is the high cost of acquiring, installing, operating, maintaining and replacing ICTs. While potentially of great importance, the integration of ICTs into teaching is still in its infancy. Introducing ICT systems for teaching in developing countries has a particularly high opportunity cost because installing them is usually more expensive in absolute terms than in industrialized countries whereas, in contrast, alternative investments (e.g. buildings) are

relatively less costly (UNESCO, 2009). The four most common mistakes in introducing ICTs into teaching are:

i) Installing learning technology without reviewing learners' needs and content availability;
ii) Imposing technological systems from the top down without involving faculty and students;
iii) Using inappropriate content from other regions of the world without customizing it appropriately; and
iv) In producing low quality content that has poor instructional design and is not adapted to the technology in use (UNESCO, 2009).

Although ICT offers a whole lot of benefits, there are some risks of using ICT in education which have to be mitigated through proper mechanisms. They are: (a) It may create a digital divide within class as students who are more familiar with ICT will reap more benefits and learn faster than those who are not as technology savvy; (b) It may shift the attention from the primary goal of the learning process to developing ICT skills, which is the secondary goal; (c) It can affect the bonding process between the teacher and the student as ICT becomes a communication tool rather than face to face conversation and thus the transactional distance is increased; (d) Also since not all teachers are experts with ICT they may be lax in updating the course content online which can slow down the learning among students (e) The potential of plagiarism is high as student can copy information rather than learning and developing their own skills; (f) There is a need for training all stakeholders in ICT; and (g) The cost of hardware and software can be very high (PHS-ICT-AS, 2008).

Teachers' Education Scenario in Manipur:
In the context of Manipur, the need for giving training to the teachers was felt as early as 1906. In those times, the department of education organized a training course for teachers for four months for improvement of the method of teaching. Twenty primary school teachers attended the course, of which nine teachers passed after completion of the course. This was the beginning of teacher education in Manipur (Jamini, 2006). Giving proper training to secondary school teachers began in the year 1928, when one of the teachers of Johnstone High School, Imphal, (Late) A. Ibungohal Singh was deputed to undergo B.T. outside Manipur. This marks the beginning of training programme for secondary school teachers. If we look into the growth and development of the teachers' education in Manipur, it may be categorized into two main periods, they are:

i) Teacher education before the formulation of the National policy on education 198 and
ii) Teacher education after the formulation of the National Policy on education 1986.

Teacher education before the formulation of the National Policy on education 1986:
A modest beginning of training the primary and middle school teachers in Manipur was made in 1952-53 by starting normal Training Institute at Imphal (Jamini, 2006). In this institution 60 undergraduate and matriculate teachers were given training. The institution was closed down in 1955-56 with the establishment of Basic Training institute (BTI) at Imphal (Devi,

Shanti. 2001). The education of secondary school teachers was done by opening B.T. section in the D.M. College in 1959. Before this, the teachers were sent on deputation for training outside Manipur. Along with B.T. section, there was a certificate of teaching (CT) class in the composite D.M. College, Imphal. The B.T. course was intended for graduate teachers and CT course was for the undergraduate teachers. CT Course was closed down after two years and it was amalgamated with the basic training course in the basic training college which was established in 1961 at Imphal. The B.T. class at D.M. College was converted into full-fledged training college (PGT) on 6th November 1972. In the beginning the college was affiliated to Guwahati University, later the affiliation was transferred to Manipur University (ibid). It was later renamed as D.M. College of Teacher Education since 1996 and upgraded to College of Teachers Education (CTE) by NCTE in 1997.

There was an urgent need to establish more institutions for training teachers as the number of untrained teachers increased day by day. In an effort to clear the backlog of the untrained teachers in Manipur, State Institute of Education (SIE) took up the task for training teachers from 1980 onwards. A sub-centre for teaching cum correspondence B.Ed. course was set up by SIE Manipur under the Regional College of Education, Bhubaneshwar. The B.Ed. elementary course had also been started for the teachers of primary to high school level by SIE Manipur since 1983. The sub-center imparts training to 250 teachers in a year. The B.Ed. secondary and B.Ed. elementary course run by SIE Manipur are equivalent to the courses run by the Utkal University, Orissa. For imparting training to Hindi teachers of primary schools, the Government of Manipur established one Hindi Teachers Training Institute in 1955 with the intake capacity of 40 and one Hindi Teachers' College in 1975 with the provision of giving training to 30 teachers in a year (Jamini p.114).

In Manipur apart from the Government teachers training institutes, there were also private institutions which actively involved in giving training to the teachers with the ultimate aim of quality education in the state. Due to the great demand for trained teachers for school, the Government established more basic training institutions in the state. They were B.T.I. Imphal, B.T.I. Canchipur, B.T.I. Ukhrul and B.T.I. Kakching; the B.T.I. Canchipur has been amalgamated with B.T.I. Imphal later.

Table 2: Teachers Education Institutions before the formulation of NPE 1986

Sl. No.	Name of the institutions	Level of training	Year of establishment
1	B.T.I. Canchipur	Primary school teachers	1959
2	B.T.I. Imphal	Primary school teachers	1966
3	B.T.I. Ukhrul	Primary school teachers	1966
4	B.T.I. Kakching	Primary school teachers	1966
5	Hindi teacher training institute, Imphal	Primary school teachers of Hindi	1955
6	Post-graduate training college, D.M. College campus	Graduate and undergraduate teachers	1972

7	Hindi teacher training college, Imphal	High school and higher secondary school teachers of Hindi	1975

Teacher education after the formulation of National Policy on Education 1986:

Teacher education of the state was planned and organized in conformity with the National Policy on Education implemented from time to time in the country. The NPE 1986 called for an "Overhaul of the teachers' education system" in the country. In pursuance of NPE-1986 and the programme of Action of 1992 on teacher education, the existing institutions of teacher were re-structured and re-organized under centrally sponsored schemes. The existing elementary teachers Training institutions like Basic training Institutions(BTI's) were re-organized into District Institute of Education and Training (DIET) and the Secondary teachers Training College and Post-Graduate teachers training college was upgraded into College of Teacher Education (CTE) and it has been renamed as Dhanamanjuri College of Teachers Education (DMCTE) re-linking its root to erstwhile D.M. College where the department of BT was first opened in 1959.The State Institute of Education (SIE) was re-organised and upgraded into State Council of Educational Research and training (SCERT) since 1989 under a separate directorate of its own. After these, six DIET's have operating at Imphal, Kakching, Moirang, Churachandpur, Senapati and Chandel since 1992. Later on more DIET's centre have been also established in three districts namely DIET Ukhrul, DIET Tamenglong, DIET Imphal East (Ranjana, 2014). Recently Diploma of Elementary Education is also opened from the academic session 2017-18 at Ibotombi Institute of Education, Kha-Naorem Leikai, Imphal, which is the only private institution for training elementary school teachers.

Table 3: Institutions providing education of elementary school teachers

Sl. No.	Name of the institutions	Course	Intake	Management	Year of Estd.
1	District Institute of Education and Training (DIET), Kakching	ETE	50	Government	1992
2	District Institute of Education and Training (DIET), Imphal	ETE	50	Government	1991
3	District Institute of Education and Training (DIET), Ukhrul	ETE	50	Government	2002
4	District Institute of Education and Training (DIET), Chandel	ETE	50	Government	2003

5	District Institute of Education and Training (DIET), Churachandpur	ETE	50	Government	1992
6	District Institute of Education and Training (DIET), Moirang, Bishnupur	ETE	50	Government	1995
7	District Institute of Education and Training (DIET), Senapati	ETE	50	Government	1997
8	District Institute of Education and Training (DIET), Tamei, Tamenglong	ETE	50	Government	2002
9	District Institute of Education and Training (DIET), Imphal East	D. ELED.	100	Government	2016
10	Ibotombi Institute of Education, Kha-Naorem Leikai, Imphal	D. ELED.	50	Private	2017
11	Hindi Teacher training Institute, D.M. College Campus, Imphal	D. ELED.	50	Government	1991

(Sources: NCTE GOI & SCERT GOM)

The above table shows the name of the institutions providing education of elementary school teachers and indicating their intake capacities, types of management and years of establishment. At present there are 11 institutions providing education for elementary school teachers in Manipur including nine D.I.E.T.S centre, one Hindi teacher training institute and one private management institute. All these institutions are affiliated to State Council of Educational Research and Training (S.C.E.R.T.).

For the secondary school teachers education, three more colleges of teacher education have been established under private management after establishment of D.M. College of Teachers' Education, namely Kanan Devi Memorial College of Education, Pangei on 14th Jan.1993, Thokchom Ibotombi Institute of Teacher Education and Training, Bishnupur on 31st Dec.1997 and Trinity Teacher Training College, Koirengei from the academic session 2003-04. The recognition of the Thokchom Ibotombi Institute of Teacher Education and Training was withdrawn by NCTE from the academic session 2002-03 for violation of norms. But it has been restored since 2003-04 academic session. Later on due to the demand for the training of the secondary school teachers, more numbers of college of Teacher Education has been established in Manipur namely Rajkumari Sanatombi Devi College of Education, from the academic session 2003-04, Imphal, Institute of Rural Education, Wangjing from the academic session 2009-10, Slopeland College of Teachers' Education, Khongjom, Thoubal District, from the academic session 2015-16. Bachelor of Teacher Education Programme has also been opened at the Department of Teacher Education, Manipur University, Canchipur,

Imphal from the academic session 2014-15. More colleges of teachers education for Bachelor of Education programme has also been opened recently namely, Ibotombi Institute of Education, Kha-Naorem Leikai, Imphal from the academic session-5, S. Kula Women's College, Nambol, Bishnupur District from the academic session 2015-16, Ideal Teacher Training Academy, Khabeishoi, from the academic session 2017-18, Mount Everest College of Teachers Education at Senapati from the academic session 2018-19 and Bethany Christian Institute at Churchandpur from the academic session 2018-19. There is I.G.N.O.U. study centre of secondary school teachers' education in distance mode at D.M. College of Teacher Education. A four years integrated course of Bachelor of Physical Education for training the teachers of physical education has also been started at Department of Physical Education and Sports Science, Manipur University, Canchipur from the academic session 2013-2014. However, admission to the said course was closed for the academic year 2017-18 due to the violations of NCTE norms.

Table 4: Institutions providing education of secondary school teachers

Sl. No.	Name of the institutions	Management	Year of Estd.	Course	Intake
1	D.M. College of Teacher Education, Imphal	Government	1972	B. Ed.	150
				M. Ed.	50
2	Kanan Devi Memorial College of Education, Pangei, Imphal	Private	1993	B.Ed.	100
3	Rajkumari Sanatombi Devi College of Education, North AOC, imphal	Private	2002	B.Ed.	200
				M.Ed.	50
4	Trinity Teacher Training College, Koirengei, Imphal	Private	2001	B.Ed.	100
5	Thokchom Ibotombi Institute of Teachers Education and Training	Private	1997	B.Ed.	100
6	The Institute of Rural Education IRE, Wangjing, Thoubal District	Private	2009	B.Ed.	100
7	Slopeland College of Teachers Education, Wangjing Khongjom, Thoubal District	Private	2014	B.Ed.	100

8	Department of Teacher Education, Manipur University, Canchipur	Manipur University	2014	B.Ed.	100
9	Ibotombi Institute of Education, Kha-Naorem Leikai, Imphal	Private	2014	B.Ed.	100
10	S. Kula Womens College, Nambol, Bishnupur District	Private	2015	B.Ed.	50
11	Government Hindi Teachers Training College, Imphal	Government	1975	HSP (B.Ed.)	50
12	Ideal Teacher Training Academy, Khabeisoi, Imphal	Private	2017	B.Ed.	50
13	Mount Everest College of Teacher Education	Private	2018	B.Ed.	50
14	Bethany Christian Institute	Private	2018	B.Ed.	50

In Manipur, the commencement of professional teacher's education has been observed to be rather late. The need of giving training to the teachers was felt as early as around 1906 by organizing a training course of teachers for four months. In 1928, one teacher of Johnston High School was deputed to undergo basic training (B.T.) outside Manipur. It was the beginning of the training of secondary school teachers in Manipur. A humble beginning of the training of primary and middle school teacher in Manipur was made in 1952-53 by starting normal training institute at Imphal. For the training of secondary school teachers, it was done by opening B.T. Section in the D.M. College in 1959. At present, there are 11 institutions providing training for elementary school teachers including nine DIET Centres, one Hindi teacher training College and one Private institution and all these institutions are affiliated to State Council of Educational Research and Training Manipur. For secondary school teachers education and training, there are 14 institutions provided bachelor of education programme including one University department, one Hindi teachers training college and 12 colleges of teachers education. All these institutions are affiliated to Manipur University, Canchipur.

There are only two institutions providing Master of Education (M.Ed.) programme namely D. M. College of Teachers Education and Rajkumari Sanatombi Devi College of Education. Due to increasing demand of the professional education of the teacher at various levels, the number of the institution is increasing rapidly. After the passing of the National Council for Teacher Education (Recognition Norms and Procedure) Regulation Act 2014, the duration of the teachers education programme at all the levels are two years course. (Norjit, 2019)

Although the overall benefits of the use of ICT for teacher's training and education in general has been almost accepted globally, in Manipur it has been observed that ICTs have not been adopted in a scale as envisioned by National or international standards. ICTs in teachers education has been given a cursory importance as could be perused from the B.Ed. syllabus prescribed in our state.

Conclusion:

An important dimension of higher education sector influenced by ICT integration is improving quality of teaching-learning. Also, the changes taking place due to globalization and internationalization attach premium to knowledge and information. Therefore, the integration of ICTs would not only help in promoting personal growth but also in developing "knowledge societies". The call of the hour is the need to provide education for everyone, anywhere, and anytime. Lifelong learning has become the driving force to sustain in the contemporary competitive environment. Therefore, to strengthen and/or advance this knowledge-driven growth, new technologies, skills and capabilities are needed. In this regards, however, the research available is scarce, though the efforts for improving pedagogical practices/ approaches are being undertaken in many countries. The scope includes development of infrastructures, content ware and trained personnel. Adoption of ICTs in education requires establishment of infrastructural facilities, acquisition of technologies and their periodic updating, management and professional support services. However, initial investments for the process of developing interface between technology tools and delivery of education are exorbitant.

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