Teachers' Perception and Attitude on ICT enabled education in Leveraging Academic aptitude and Professionalism

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Abstract

The ICT enabled education enhances both teaching and learning qualities. The educational justice is dependent upon the quality teaching. In effective teaching, the teachers have a significant role in engaging students for active learning. Teachers are the most significant school-related factor influencing student success, and how teachers are prepared and supported throughout their careers is essential to their success. Using a variety of techniques, teachers are creating intellectually ambitious tasks in students and motivating them with effective scaffold and support. Providing clear standards after having continuous assessments and evaluation the educators facilitate student progress. The professionalism in teaching will have an obvious influence on learning. Studies say that, the active involvement of teacher in education is vital in student performance and growth. The success of a student is dependent on how teachers prepare themselves for education. Continuous professional development for all educators leads to increase in student achievement. This paper analyzes the importance of ICT enabled education in enhancing professionalism and academic aptitude among the school teachers in Tamilnadu.

Keywords: ICT, technology enhanced education, teachers professionalism, academic aptitude.

Introduction

Technology use in education is becoming an increasingly important part of higher and professional education (Wernet, Olliges, and Delicath, 2000; and Almekhlafi, 2006a, 2006b)[1]. The ICT Policy in School Education aims at preparing youth to participate creatively in the establishment, sustenance and growth of a knowledge society leading to all round socioeconomic development of the nation and global competitiveness[2]. The Government of India launched The Information and Communication Technology (ICT) in School Scheme by the Department of School Education and Literacy, Ministry of Human Resource Development (MHRD) in December 2004. The aim of this scheme was to give opportunities to secondary stage students to construct their capacity in ICT skills and to ease learning through computer aided processes. The reason to induct this particular scheme was to bridge the digital divide between the students of different socio- economic backgrounds and across geographical fences. The central government enacted this scheme for the benefit of the entire nation. A committee has been formulated by the government to sketch a policy on the usage of ICT in education. The committee made a report which intends at using ICT for organizing the youth to compete globally and participate creatively in the establishment, sustenance and growth of the knowledge society[3].

The government insists on certain areas which have to be under strict consideration while enacting ICT enabled education. Among them, teachers related issues are given more attention.

As per the report, there are provisions for in-service (induction and refresher) training for all teachers in secondary and higher secondary schools to facilitate them to impart ICT enabled teaching. It also suggests union with the existing programme would be vital especially in teacher training and ensuring dependable power supply and internet connectivity. The scheme includes National Award for teachers using ICT in schools in the teaching learning process. In education teachers are the crucial parts, who share ample responsibility in preparing the students to lead successful and productive life. The induction of ICT in to education made the role of a teacher more responsible.

The Potential of ICTs in Education

'ICTs are basically information-handling tools- a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information. They include the 'old' ICTs of radio, television and telephone, and the 'new' ICTs of computers, satellite and wireless technology and the Internet. These different tools are now able to work together and combine to form our 'networked world'–a massive infrastructure of interconnected telephone services, standardized computing hardware, the internet, radio and television, which reaches into every corner of the globe'[4]. Research and further explorations have established that various Information and Communications Technologies (ICTs) have the potential to insert different features of educational development and effectual learning, widening access, triggering competence, providing education with efficient teaching and learning. ICTs

also offer promises in helping skill shaping, supporting long term learning, and advancing society connectivity.

In India Information and Communication Technology (ICT) has enormous potential as a tool of social transformation and economic growth. The Central proposal of ICT in education merits attention in this context with its emphasis on bridging the digital divide in schools owing to geographical, economic and/or social factors. Information and Communication Technology (ICT) can donate to universal access to education, equity in education, the delivery of quality learning and teaching, teachers' professional development and more efficient education management, governance and administration[5]. The importance of the ICT enabled education in India was highlighted in the National Policy on Education 1986 (modified in 1992) that paved the way for integration of ICT in school curriculum[6]. "The policy defines ICT Literacy in terms of levels of competence. Based on the stage of schooling at which a student or teacher is introduced to ICT, they may progress to different levels. These levels are suggestive and adaptations must be made to suit local conditions. The levels do not correspond to specific classes (for e.g. sixth or seventh standard) and time duration must also be locally determined. Also, these levels must be revised periodically to keep pace with changing technology"[7].

ICTs and Teaching: Teaching can be traced as one of the demanding and significant vocations in the world. Teachers role comes important in assisting learning and making it more competent and effectual since they are holding the key to the accomplishment of any instructive reform. Simultaneously they are accountable to human development too. ICTs have a significant role in imparting education to the students. ICT can improve teaching by enhancing an already practiced knowledge and introducing new ways of teaching and learning (Elmaifi, 2014)[8]. It is evident that broadband and interactive whiteboards participate a vital role in fostering teachers' communication and increasing partnership among educators.

Effective teaching often escorts innovative pedagogical use. It is necessary to give training to induct innovative teaching methods. Latest technologies which offer a fine fit with existing practices, such as interactive whiteboards are first to be entrenched, but others like digital video, video conferencing, and virtual learning surroundings are now being included, providing proof of ongoing learning by the workforce. Training has to be continued to hold up inventive pedagogy. But studies show that Transforming teaching is more difficult to achieve. "Changes that take full advantage of ICT will only happen slowly over time, and only if teachers continue to experiment with new approaches". Constant efforts make this task possible. Information and Communications Technologies make planning and preparing resources easier than before. ICTs allow for a higher quality lessons through collaboration with teachers in planning and preparing resources (Ofsted, 2002)[9].

When it comes with ICT use in education, it showed that teachers have not fully altered their use of ICT in teaching; most of them altered their thinking about the application of Information Technologies in education. This gives a positive sign towards ICT induction in education. But few other studies show that the impact of ICT in education is limited. Ramboll says ICT generally has a positive impact on teaching and learning situations, but compared with the ideal expectations; the impact of ICT on teaching and learning must still be considered to be limited. The technology changes in every second. Any existing technology may get outdated with something updated in the very next moment. This phenomenon gives a strong warning to the teaching community to update themselves according to the changes in the system. Angell (1995) says we are entering a new elite cosmopolitan age of information superhighways. Global commerce will force through the construction of multimedia highways, and anyone bypassed by these highways, faces ruin[10].

ICT in Tamil Nadu Schools: The Central supported ICT in Schools Scheme was commenced in December 2004, and revised in 2010, to endorse computer enabled learning and practice of ICT in teaching in Government and Government aided and Higher Secondary Schools. This is with an emphasis on educationally diffident blocks and areas with concentration of SC/ST/Minority/weaker segments. Under the proposal there is a provision and provide monetary support to States/Union Territories to obtain computers and other ICT related infrastructure. The funding of Rs. 6.4 lakhs (non-recurring) and Rs. 2.7 lakhs (recurring) per School is given under the Scheme which is shared between Center and State in the ratio of 75:25[11]. 431 high Schools and 1910 higher secondary schools totally 2341 schools will be provided Information and Communication facility through "BOOT" Model over a period of five years commencing from the year 2011-12 at a total cost of Rs. 149.82 Crore and as first installment of the year 2011-12 an amount of Rs. 31.21 crore has been sanctioned by the State Government.

ICT Initiatives by Tamilnadu State Government

In Tamilnadu, there are no specific ICT teachers designated or appointed in government or corporation schools. The state government of Tamilnadu has taken a number of initiatives connected to the Induction and utility of Information and Communications Technology in schools. i. Education Management Information Center, ii. SMS Based attendance for teachers, iii. Smart Card for students, iv. Education content server, v. Project Shiksha, vi. Intel @ Teach program, vii. Computer education to students in standard VI to X, viii. Computed aided language Learning Laboratories.

In 2014[12], The IIT Madras conducted an assessment study on ICT @ School Scheme in Tamilnadu and prepared a report which is submitted to the ministry of Human resource and development. The core objective of the study was to assess the

relevance and benefits of the ICT projects in the state. As per the guidelines of the MHRD, the evaluation should comprise 25% of the districts in the state. In Tamilnadu, there are 32 districts and for the study, 8 of them are considered, and they are Chennai (Urban district), Villupuram (Rural district), Thiruvannamalai (District with lower Tele-density), Coimbatore (District with high Tele-density), Cuddalore (Urban district), Dharamapuri Characterized as backward by the state), Virudhanagar (District with electricity problems) and Dindigal (Medium Tele-density).

The study analyzed the implementation of ICT in the selected districts, along with checking the number equipments and other amenities like number of schools with ICT implementation, laptops, Desktops, Digital Projectors, UPS, Printers and scanners. The study also evaluated the availability of internet connections, type of internet connections, utility of Email, and schools having website information. The availability of computer labs and network computers were also evaluated. The detailed data is given.

Curriculum for ICT: Studies show that there is no particular curriculum available to teach computer science as a subject for the classes IX and X where as computer science is taught in class XI and XII where they have computer science as elective subject. It is evident that ICT is taught as a subject only at the Higher Secondary Level in 100% schools but only for those students who have opted for computer science as their elective subject. The usage of computer lab is restricted only to these students and not for everyone in the School.

Table-1
Status of ICT implementation in the evaluated districts and facilities[13]

District	Total No of High and Higher Sec Schools	No. of schools with ICT	% of Schools with ICT	Total Laptops	Total Desktops	Digital Projectors	UPS	Printers	Scanners
Chennai	56	51	91%	45	408	49	51	46	2
Dharmapuri	213	132	62%	105	1220	207	207	207	207
Villupuram	380	233	61%	314	2275	142	290	284	46
Coimbatore	258	143	55%	143	896	65	114	100	70
Tiruvannamalai	379	204	54%	143	896	65	114	100	70
Cuddalore	274	142	52%	92	1195	139	142	142	24
Dindigul	220	98	45%	98	749	80	107	80	9
Virudhunagar	269	58	22%	46	535	56	63	58	20
Total Distribution				978	8878	942	1178	1121	383

Table-2
Information on Internet/ Use of Email facility/Website Information

District	Total No. of Schools	No. of Net connected schools	% Net connected	Details Dial/up/Broad band/Wireless/ V-Sat	No. of schools use the email facility	% schools	No. of schools having website information	% schools
Chennai	56	20	36%	Broadband	20	36%	3	5%
Dharmapuri	213	207	97%	Broad/data Card	207	97%	0	0%
Villupuram	380	0	0%	---	0	0%	0	0%
Coimbatore	258	143	55%	Broadband	143	55%	0	0%
Tiruvannamalai	375	90	24%	Broadband	90	24%	0	0%
Cuddalore	274	113	41%	Broadband	113	41%	0	0%
Dindigul	220	98	45%	Broadband	98	45%	0	0%
Virudhunagar	269	29	11%	Broadband	29	11%	0	0%
Total Distribution								

Table-3
Availability of Computer labs and Network

district	Computer lab	Total No. of computers in schools	No. of computers networked	Number of computers not networked	% of Networked computers
Chennai	100%	174	13	161	7%
Dharmapuri	90%	97	21	76	22%
Villupuram	100%	103	9	94	9%
Coimbatore	70%	78	11	67	14%
Tiruvannamalai	90%	116	7	109	6%
Cuddalore	100%	100	9	91	9%
Dindigul	90%	89	21	68	24%
Virudhunagar	100%	74	10	64	14%

Table-IV
Training for Non ICT Teaching staff

	Male	Female	Male %	Female %
Chennai	89	266	39%	55%
Cuddalore	136	219	41%	45%
Thiruvannamalai	120	110	42%	33%
Villupuram	168	109	46%	30%
Coimbatore	114	229	13%	19%
Dharmapuri	195	104	13%	21%
Virudhunagar	88	132	24%	23%
Dindigul	106	162	18%	12%

In Chennai, 39% male and 55% female, Cuddalore 41% male and 45% female, Tiruvannamalai 42% male and 33% female, Villupuram 46% male and 30% female, Coimbatore 13% male and 19% female, Dharmapuri 13% male and 21% female, Virudhunagar 24% male and 23% female, Dindigul 18% male and 12% female had been trained on computer.

Usage of ICT in teaching: The studies give a negative feedback from the non- ICT teachers with regard to the utility of ICT as a tool for teaching. There are no restrictions in schools for them to use computers or internet for teaching, but due to lack of time they are unable to find time to use computers. They are keeping themselves busy with the regular academic timetable. The non- ICT teachers nearly 70-80% never use computer for instructing the students in their respective subjects. Teaching learning, Teaching computer, finding or accessing

information, making presentations, preparing lessons, Communication with teachers, Communication with parents, monitoring and evaluation of students' performance, track students' performance and preparation of report cards or their professional developments are untouched by these teachers. The above mentioned parameters have been used to analyze the ICT use of the teachers in academics.

A minimum number of 10% teachers often find time to inculcate ICT into their regular academic time table to instruct the students in their respective subjects but only 1-5% of the teachers are the people who very often use ICT as a medium of instruction. They never use computers from school, and they use it at home. Teachers restrict themselves from using computers from school premises.
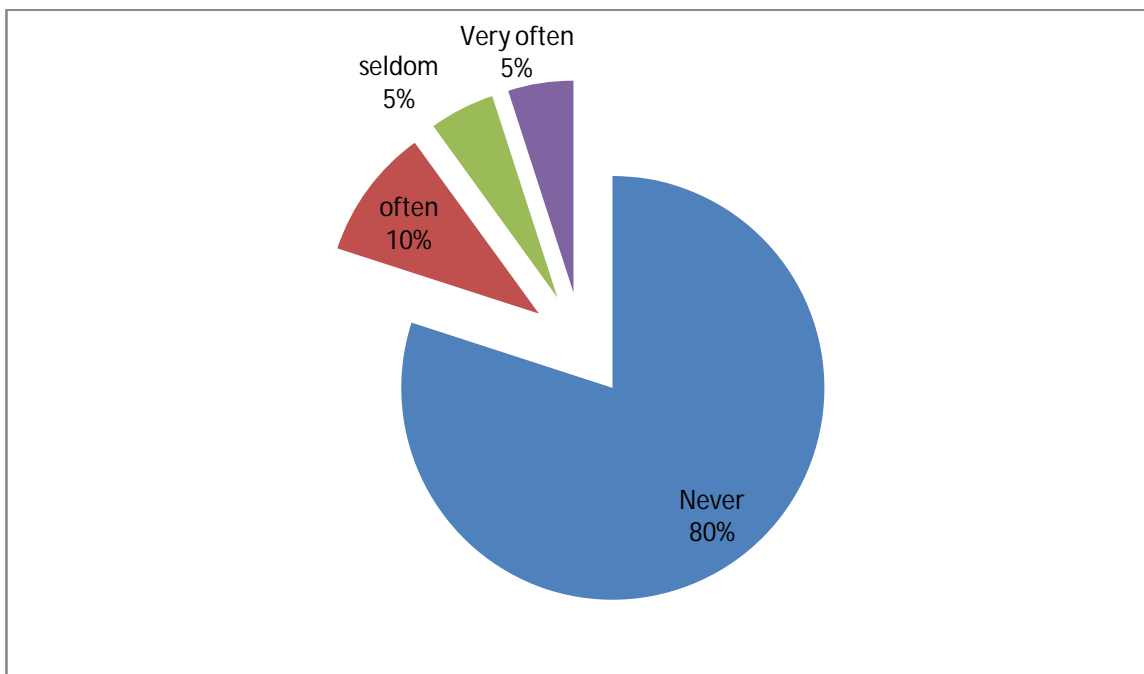
Figure- 1
Usage of ICT in teaching- Non ICT Teachers

Based on the parameters like usage of e-books, Internet surfing, spread sheet, word processing software, presentations, photo shop, programming languages, social gaming, downloading and subject specific utility, it is found that an average of 82% of the teachers are not using the technology in their day today activities. A number of 18% teachers are using technology in academic activities.

Teachers perception towards Technology

A self assessment study has been conducted among the non ICT teachers to assess their skill set, Preparedness, competency and preparedness and comfort level. Among the participants of the study 37% of the teachers stated that they are fast grasping the technology whereas 27 said that they are average.10% stated that they are below average and 29% said that their knowledge was not satisfactory while only 2% of the teachers responded that they are highly satisfied with the skill set they possess in using the technology. The competency, preparedness and comfort levels in using technology were also analyzed. Among the participants 37% of them responded that they are fast grasping. 26% of the teachers felt they are average, about 10% expressed they were below average and 30 % are not satisfied with the competency level, preparedness and comfort in utilizing the technology.

Non- ICT teachers, majority of them who responded to the question Technology vs. Chalk and Talk method, agreed that Technology promotes practical learning, it creates visual auditory impact, it encourages interactive learning and that it saves time as well. At the same time 51% teachers responded

that technology is partially cumbersome though it saves time. 47% felt that technology is partially difficult to use due to heterogeneity of the student's aptitude. 69% of the teachers argued that conventional chalk and talk technology cannot be replaced with technology inducted teaching. Teachers want to combine both technologies to impart education. Most of the teachers responded that using technology in teaching subjects is comparatively effective. Majority of the teachers are not using technology for different purposes such as teaching, preparing lessons, research, and clarification on topics, new teaching methodology, preparing test papers, assessment and evaluation, administration work, self professional development or for their educational recreation.

Conclusion

Teachers' viewpoints of their use of Information and Communications Technology, accepting of this technology, and approaches about the support arrangement associated with this equipment have been examined with the findings suggesting that teachers believe technology is an essential division of the process of educating their students. This study analyzed that majority of the teachers are having a positive attitude towards ICT utility but when it comes to application level, they lag behind. It is notable that there is no separate department for ICT in schools where as most of the schools have computer labs. It is found that there are no ICT teachers appointed in any of the government or corporation schools in Tamilnadu. The support of a specialist faculty makes the situation more viable to other teachers. It is notable that only 2% of the teachers are using ICT for their day today activities. A composite integration of

Technology in to the academics and personal affairs of a teacher can create notable changes both in his/her professional as well as personal lives. Enhancing teachers' technology integration abilities and skills by delivering workshops about effective technology integration may be advisable at this point. The state education department should take initiatives to provide teachers with some release time so that they can plan effectively for technology integration in teaching and learning.

References

1. Balmeo M. Nimo, Pagal A., Puga S., Quiño A. and Sanwen J., Integrating Technology in Teaching Students with Special Learning Needs in the SPED Schools in Baguio City. *The IAFOR Journal of Education,* **II(II)** **(2014)**

2. www.://mhrd.gov.in: Department of School Education and Literacy Ministry of Human Resource Development Government of India, Last accessed- 01-02-2015 **(2015)**

3. www.ictschools.gov.in: ICT School schemes in Tamilnadu- An assessment, Department of humanities and social sciences, IIT Madras, Last accessed- 08-01-2015 **(2015)**

4. http://www.unesco.org: Role of ICTs in education and development: potential, pitfalls and challenges, Last accessed 05-012-2014 **(2014)**

5. www.unesco.org: CT in Education, Last accessed 08.02.2015 **(2015)**

6. www.ncert.nic.in: National Policy on Education 1986, Last accessed- 08-01-2015 **(2015)**

7. www.itforchange.net: Department of School Education and Literacy, Ministry of Human Resource Development, Government of India, Last accessed 20.09.2014 **(2014)**

8. Elmaifi, Advantages of using ICT in learning and teaching process. Ed Tech Review. Retrieved October 19, 2014 from http://edtechreview.in/trends-insights/insights/959-advantages-of-using-ict-in-learning-teaching-processes **(2014)**

9. Standards and Quality 2002/03 The Annual Report of Her Majesty's Chief Inspector of Schools. (2004). London: Office for Standards in Education, **(2004)**

10. Angell I., Retrieved September 1, 2015, from http://personal.lse.ac.uk/angell/papers/strategy/InfoStrategy.htm **(1998)**

11. ICT @ School Scheme in Tamilnadu- An Assessment report submitted to the ministry of Human resource and development, **(2014)**

12. Suresh Babu M. and Brahme M. (n.d.), *ICT@ School Scheme in Tamilnadu- An Assessment.* Chennai: IIT Madras

13. Department of School education, Government of Tamilnadu