Information and Communication Technology (ICT): A New Wave in English Language Teaching/Learning

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1. Introduction:

Diversified opportunities of information and communication technology, which are recognized as the driving forces behind development, are now being exploited in various sectors. Many countries of the world have been reaping the benefits of information and communication technology to improve the standards of education. ICT is already in place in India with a view to improving the standard of education. Substantial importance has been attached to ICT in education in the National Policy on Education, 1986. It is assumed that adoption of ICT in English helps to develop the communicative ability among the students as the use of ICT offers a facilitative teaching-learning culture. This paper attempts to highlight the potentialities of ICT as a powerful tool for English language teaching and learning at higher education level in India. The purpose of this study is to examine the necessity of ICT and emphasize its importance as teaching and learning space in the contemporary digitalized day-to-day teaching of English language. The study also focuses on the use of ICT in the English classroom, based on the needs of the higher education students. This paper also makes some recommendations for the successful implementation of ICT in English language teaching at higher education level in India.

2. Review of Related Literature:

Geoff Walsham (2010) examined on ICTs for the broader development of India. Results revealed that many ICT-based initiatives have taken place over the last decade and some positive effects have resulted. However, the beneficiaries are usually not the poorest or most disadvantaged groups, it is hard to scale up initiatives to have effects throughout India, and the need for attitudinal and institutional change remains a fundamental problem. It is argued that ICTs should not be seen, as 'silver bullets' for development but neither are they irrelevant. Rather, they are potentially important contributors towards development in India but only through their integration in wider sociotechnical interventions.

Arora (2007) carried a study on the ICT laboratory: Analysis of computers in public high schools in rural India, Journal and Association for the Advancement of Computing in Education. Having met some excellent and dedicated teachers within the public school system, it was apparent that leadership within this sector was a real possibility. Nor can we consider the ICT efforts completely wasted on these schools; there was a sense of pride created and interest generated among the teachers and students for gaining these privileges. However, to sustain this, continued support is needed from the public and private sector.

Singarvelu and Muthukrishna, (2007) focused on the learning activities to be performed in the traditional learning by exploiting the modern ICT and dwells on the feasible learning activities in the domain of ICT in order to better and further the e-communication learning outcomes of the students in education in general and higher education in particular. This study concluded that Information and Communication Technology is uniquely placed to generate the quality in higher education. The full benefit of technology in the educational process is realized only by enhancing the technological skill of faculty and students, ensuring adequate system support and providing the funds necessary to build a new academic framework around the new resource. Available resources can be utilized and implemented in the research work to promote the teamwork, global consciousness; self paced learning, self-learning, problem solving and cognitive process.

Subbaiah (2005) did a research on Application of ICT in English Language Teacher Education. A method used was normative survey technique. The sample was taken 29 District Institutes of Education and Training from Tamil Nadu, 71 English teacher, educators and 200 teacher trainees by using (1) Questionnaire, (2) Attitude scale, (3) Interviews, (4) Diary analysis used for data collection. The results were found that (1) Sixty-six per cent of teacher educators do not know the basic principles of computer. (2) It is unfortunate that the ICT practices have not seen the widespread application for teacher education. (3) Attitude of teacher educators towards ICT is quite positive. (4) It reveals that the focus of computer equipment problem had both quantity problem (not enough computers) as well as quality problem. Seventy-two references were cited in the study.

Meera (2000) designed a Quasi-experimental method as well as qualitative and quantitative approach to examine the study on Relative effectiveness among different modes of Computer-based Instruction in relation to students' personality traits. The sample was taken from four groups of each having 35 students selected through probability sampling method. It was observed from the results that: (1) Different modes of Computer based Instruction, viz. Drill, Practice and Simulation were more effective than conventional lecture method in realizing the instructional objectives in Biology at Class XI. (2) Effectiveness of the conventional lecture method and the different modes of the Computerbased Instruction, viz. Tutorial, Drill and Practice and Simulation were not influenced by the learner's personality. (3) There was significant difference among the different modes of CBI (Computer based Instruction), viz. Tutorial, Drill and Practice and Simulation in terms of their effectiveness in enhancing the retention of cognition as revealed by the learner's performance in the retention test. There was significant difference among the different modes of Computer-based Instruction in enhancing retention of what have already learnt. Seventy-five references were included in the study.

3. Research Methodology:

The present study is primarily based on secondary data analysis and interpretation. It would highlight the issues relating to the potentialities of ICT as a powerful tool for English language teaching and learning. The secondary data is also used to examine the necessity of ICT and emphasize its importance as teaching and learning space at higher educational institutions of India. Besides the secondary data, other sources are also consulted such as utilization of various books, journals, library resources, and internet materials.

4. Background of the Study:

The 21st century is the age of technological development and this is reflected in all spheres of life, including teaching and learning of English as a foreign language. The use of Information and Communication Technology (ICT) is very common in our everyday life and in the learning and teaching process in most of the developed countries. The researchers and linguists are now emphasizing the need for all learners to master what they call "21st century skills" which is also similar to what the Government of India declares as 'Digital India'. This digitalization of education is important to integrate the communication technology and classroom activities. Particularly, in teaching English language, modern technological tools are essential, interesting and have proved successful. Language teachers should try

to exploit the potentials of ICT as it can easily and effectively promote the language learning at the higher education level in India.

ICT provides an interactive media for engaging students, providing opportunities to group analysis and practice. It also provides better access to resource materials (subject content and other related resources) and relevant articles. Effective use of ICT can facilitate student-centered active learning, engage students in collaborative learning as well as enhance their social interaction, improve their cognitive development, increase their creativity and improve their problem-solving skills. If ICT is effectively implemented at the higher education level in India, students are expected to be able to use English for their real life communication and as such, India will be able to fulfill the goal of digitalization of education.

5. What is Information and Communication Technology (ICT)?

Information and Communication Technologies (ICT) are defined as all devices, tools, content, resources, forums, and services, digital and those that can be converted into or delivered through digital forms, which can be deployed for realizing the goals of teaching learning, enhancing access to and reach of resources, building of capacities, as well as management of the educational system. These will not only include hardware devices connected to computers, and software applications, but also interactive digital content, internet and other satellite communication devices, radio and television services, web based content repositories, interactive forums, learning management systems, and management information systems. These will also include processes for digitization, deployment and management of content, development and deployment of platforms and processes for capacity development, and creation of forums for interaction and exchange.

6. ICT in English Language Teaching in India:

ICT is the term that is currently used worldwide to describe new technologies, which depend mainly on computer and the internet. Even the traditional technologies such as radio, television and telephone are considered as ICTs. According to the United Nations Development Programme (UNDP, 2003), ICT includes, "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 can reach into every corner of the globe".

Technological innovations have changed the social, political, economic and cultural fabric of life. ICT has a considerable influence on the way we teach and the content we deliver. However, ICT as a teaching aid is more complicated in that it demands more specific skills from the teacher. ICT no longer serves to be a simple additional means but ICT is an indispensible part of the modern and contemporary learning environment.

The application of ICT gives more opportunities for communication among peer learners: they can exchange information in real time, they can participate in blog discussions, work in teams on different projects, exchange emails, search for information etc. Moreover, Audio/video programme of a particular lesson can provide students with extra opportunities to do meaningful language learning tasks. In this context, we can mention the Open Learning Universities in India, which have been providing audio and video-based language learning opportunities to the students ranging from secondary level to post graduate level.

The emancipatory and transformative potentials of ICT in higher education in India have helped to increase the country's requirement of higher education through part-time and distance-learning schemes. It can be used as a tool to overcome the issues of cost, less number of teachers, and poor quality of education as well as to overcome time and distance barriers (McGorry, 2002). 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. While the world is moving rapidly towards digital media, the role of ICT in education has become increasingly important. It has transformed the way that knowledge is disseminated today in terms of how teachers interact and communicate with the students and vice-versa. Besides, it can provide networking structures transcending borders and foster empowerment amongst students.

UNESCO (2002) highlights how the application of ICT could benefit the students, employers and the government. While technology can bring about a learner-centered approach, it could also be harnessed for multiple purposes such as increasing the capacity and cost effectiveness of education and training systems and enhance the quality of higher education.

7. Higher Education Scenario in India:

India has one of the largest higher education systems in the world consisting of over 651 universities according to UGC as on 2013. Besides there are 31,324 colleges of higher learning in the country as on August 2011 according to the 12th Five-Year Plan Report (2012-17). The number of students enrolled in the universities and colleges has increased since independence to 13,642 million in the beginning of the academic year 2009-10 with 1,669 million (12.24%) in the university departments and 11.973 million (87.76%) in the affiliated colleges (MHRD, Annual Report, 2009-10). However, this growth in numbers does not reflect much improvement in the delivery of higher education in the country.

Table 1: Type-wise classification of Universities in India

Sl. No.	Type of Institution	No. of Institution (As on 2006)	No. of Institution (As on 2013)
1	Central Universities	20	44
2	State Universities	217	310
3	Private Universities	8	168
4	Institutions Deemed to be Universities	104	129
	Total	349	651

(Source: UGC)

The application of ICT in higher education has not only brought about diversification in higher education but has also fostered new avenues for international mobility of traditional and non-traditional students. While it is believed that ICT can transform the educational scenario in the country, it should address the needs and perform multiple roles in higher education to benefit all stakeholders. This sense of urgency and the continuous implementation of ICT in higher education have led many universities and colleges into a more action-oriented adaptation approach (Schmidtlein & Taylor, 2000).

8. Major ICT Initiatives in Higher Education:

India has taken up major initiatives in terms of content delivery and furthering education through Information and Communication Technology. For instance, Gyan Darshan was launched in 2000 to broadcast educational programs for school kids, university students, and adults. Similarly, Gyan Vani was another such important step which broadcast programs contributed by institutions such as IGNOU and IITs. Under the UGC countrywide classroom initiative, education programs are broadcasted on Gyan Darshan and Doordarshan's National Channel (DD1) everyday. E-Gyankosh, which aims at preserving digital learning resources, is a knowledge repository launched by IGNOU in 2005. Almost 95% of IGNOU's printed material has been digitized and uploaded on the repository. The National Programme for Technology Enhanced Learning (NPTEL) launched in 2001 is another joint initiative of IIT and IISc, which promotes education through technology.

Moreover, the ambitious National Mission on Education through ICT was launched by the government to harness ICT's potential throughout the length and breadth of the country. The National Mission on Education through Information and Communication Technology (NMEICT) has been envisaged as a Centrally Sponsored Scheme to leverage the potential of ICT, in teaching and learning process for the benefit of all the learners in Higher Education Institutions in any time any where mode. This was expected to be a major intervention in enhancing the Gross Enrolment Ratio (GER) in Higher Education by 5 percentage points during the XI Five Year Plan period. The three cardinal principles of Education Policy viz., access, equity and quality could be served well by providing connectivity to all colleges and universities, providing low cost and affordable access-cum-computing devices to students and teachers and providing high quality e-content free of cost to all learners in the country. In 2009, the Cabinet Committee on Economic Affairs (CCEA) approved the landmark "National Mission on Education through ICT" scheme. The Mission has planned a variety of initiatives aimed at developing and standardizing digital content for Indian higher education segment. The Mission envisions of catering to the learning needs of 500 million people in the country.

9. Issues and Challenges Affecting Utilization of ICT in Higher Education:

While we glorify the role of ICT in the higher education sector, we also need to assess the problems and prospects in its implementation. Literature on ICT in education continues to project that it can help improve India's higher education system by providing greater equity. better access and improved quality. There is a growing apprehension that Information and Communication Technology can transform India towards becoming a knowledge-based society, but then it is significant to question whether technology alone can enhance the quality of higher education in the country. The penetration of ICT systems in higher education institutions is extremely poor according to a survey of accredited colleges by UGC in 2008, which reveals shortcomings in IT infrastructure. As the majority of Indians living in rural areas have poor access to internet, it is necessary that they are exposed and trained in basic computing skills and ICT utilization. Moreover, the low awareness on IT literacy is also a major challenge India faces in realizing ICT implementation in higher education. According to the International Telecommunication Union, and The Internet and Mobile Association of India (IAMAI) report, a majority of government institutions do not have sufficient IT systems.

India's linguistic diversity necessitates the development of content in multiple languages to increase ICT applications. According to the 2011, Census the rural-urban distribution is 68.84% & 31.16% in terms of population where majority of the rural people do not speak English. Therefore, the need to develop content in all the official languages of India becomes all the more important. While there are many challenges in development of local language content particularly due to the absence of script and font standardization, local language computing becomes problematic though not impossible. In a multi-lingual country like India, this standardization becomes even more difficult. However, this needs to be addressed immediately. As ambitious ICT based initiatives in higher education is envisioned, it is necessary to embark on a well-articulated 'Action Plan'.

Some of the important ICT tools and applications used in the field of English Language Teaching are discussed in the following:-

i. Computers: This is the most important tool of information and communication technology and the backbone of modern human

- life. All the modern communication processes are impossible without the use of computers. It is helpful in storing, preparing, and collecting of data for communication. It is also helpful in the development of the listening and speaking skills of the learners.
- **ii. Overhead projector:** It is an important tool of displaying information and processes to a large number of people simultaneously. It can be used in teaching and training of the learners as well as other personnel. Prepared forms of information are easy to display with the help of over head projectors.
- **iii. Lingua phone:** This tool is very important in language training of the students. It is a language-teaching system based on the use of sound recordings in conjunction with textbooks. A number of students can practice speaking and hearing drills with the help of lingua phone. It is especially useful in the training of English language listening and speaking skills.
- **iv. Radio:** It is very useful in education and training of the students of rural areas. Many distance and open education programmes are being conducted with the help of radio. It is also useful in audio conferencing. Programmes relayed on radio are helpful in the development of language skills, especially dialogues and dramas.
- v. Television: It is very useful in education as well as entertainment of the people. It is found that it is helpful in developing listening skills, in learning situational language, and also highly motivating. It is very useful in understanding the language of mass media. A large number of students may be benefitted with the programmes of television simultaneously. Many distance and open universities are running their educational programmes on television, such as Indira Gandhi National Open University, Maulana Azad National Urdu University etc. It is an important tool of audio video conferencing. Live telecast of training and discussions are also done through this.
- **vi. Internet:** It is one of the most important mediums of communication today. Most of the modern communications takes place through this. It has made the communication system very fast, convenient, economic, and attractive. There are many facilities available for communication on internet. Some of them are following:
- vii. **Social media:** Social media has become an important tool of communication. It provides a platform for sharing thoughts and

ideas. Blogs are made on it. Students can add themselves with the English language learning groups and take advantage of sharing information. Lots of social sites are available on it such as Facebook, Twitter, Instagram etc. It is also very helpful in learning situational language.

viii. **Online facilities for English language learning:** A lot of online facilities are available on internet for the development of language skills. Some of them are e-guidance, e tutoring, e-teaching, e-journals, e-magazines, e-books, e-library, online training, virtual classes etc.

ix. **Online language related courses:** These courses are available on internet. Some of them are free and some of them are payable. Students can enroll themselves in these courses and get education and training easily on their own place. Some of the agencies, which are providing online courses, include Massive Open Online Courses (MOOC), Future Learn, and National Programme on Technology Enhanced Learning (NPTEL), IIT's, and Concordia University, Canada etc. Students can watch online and offline videos of language learning for the enhancement of their language skills.

x. **Feature Films in Teaching English:** Films can be used in the teaching of English language. Films may be documentaries that are educational and entertainment based. These can arouse high level of motivation among the learners. It results in a most satisfying learning experience.

10. Uses of ICT for an ELT Teacher:

We cannot think of better educational environment without a better teacher. With the change in time, the role of teachers has changed a lot. He is considered a guide and friend of students who helps in learning. To teach better a teacher needs to be updated with the recent changes and developments in the field of education and technology. For this ICT helps a lot. ICT can be useful for a teacher in the following ways:

i. It is helpful in the professional development of the teachers. A teacher can learn various language skills with the help of information and communication technologies. He/she can do various certificate courses in English language teaching run by the famous educational institutions like Cambridge University, British Council etc. These programmes help in enhancing his/her capacity to teach English

- language and to make his/her subject content easy, economic and more understandable.
- ii. A teacher can increase his/her domain of English language knowledge with the help of e-journals, e-magazines and e-library that can be achieved only with ICT. He/she can also participate in discussions and conferences with the experts of English language teaching to improve his/her knowledge and skills ELT through audio and video conferencing.
- iii.ICT helps a teacher to learn innovative methods of teaching. He/she can work with the students on various projects and assignments. It also helps him/her in providing teaching contents, home works etc.
- iv. A teacher may participate in various in-service training programmes and workshops, which are essential for his/her, professional development with the help of information and communication technologies.
- v. ICT helps a teacher to guide his/her students about the English language learning materials available on internet, e-books, e-journals, e-magazines and social sites like LinkedIn which are helpful in a better learning of English language skills.
- vi.ICT also helps a teacher in framing curriculum of English language learning. He/she can study curriculums ELT of different countries to study their pros and cons, challenges as well as sociological and psychological issues related to English language learners. All these things help him/her in framing a curriculum that leads to achieve the aims and objectives of English language teaching.

11. Limitations of ICT Tools:

Though ICT tools are very helpful in the teaching and learning of English language, still these tools have some limitations. Some of the limitations are discussed below:

- i. Due to freedom of time and space often students become careless about their targets and indulge themselves in meaningless works.
- ii. Repeated use of recorded programmes creates boredom in the students that leads to the problem of indiscipline in the classroom.
- iii. Most of the times students remain passive and inactive in the teaching learning process because they get less opportunities to participate actively.

iv. The use of ICT tools needs technically trained teachers the lack of which can create problems in the Teaching Learning Process.

12. Disadvantages of Using ICT in Language Classes:

First of all, the computer is a machine, not a method. The world of online communication is a vast new medium, comparable in some ways to books, print, or libraries. It is not an easy task to determine whether the book or the library is beneficial for language learning. Seeking similar sweeping conclusions on the effects of the computer or the Internet is equally futile. Secondly, and even more importantly, new communication technologies are part of the broader ecology of life at the turn of the century. Much of our reading, writing, and communication are migrating from other environments (print, telephone, etc.) to the screen. In such a context, we can no longer think only about how we use technologies to teach language. We also must think about what types of language students need to learn in order to communicate effectively via computer. Whereas a generation ago, we taught foreign language students to write essays and read magazine articles, we now must also teach them to write e-mail messages and conduct research on the Web. In summary, the advantages of using new technologies in the language classroom can only be interpreted in light of the changing goals of language education and the changing conditions in postindustrial society. Language educators now seek not only to teach students the rules of grammar, but rather to help them gain apprenticeship into new discourse communities. This is accomplished through creating opportunities for authentic and meaningful interaction both within and outside the classroom, and providing students the tools for their own social, cultural, and linguistic exploration. The computer is a powerful tool for this process as it allows students access to online environments of international communication. By using new technologies in the language classroom, we can better prepare students for the kinds of international cross-cultural interactions, which are increasingly required for success in academic, vocational, or personal life.

13. Conclusion:

Information and Communication Technology has no doubt brought about tremendous change in education, but we are yet to achieve the desired level of IT adoption in higher education in the country. The optimal utilization of opportunities arising due to diffusion of ICTs in higher education system presents enormous challenges. Nonetheless,

it has become an indispensable support system for higher education as it could address some of the challenges facing higher education system in the country. Moreover, it can provide access to education regardless of time and geographical barriers. Similarly wider availability of course material in education, which can be shared by means of ICT, can foster better teaching.

In spite of all the limitations, ICT presents a powerful learning environment for the students in the language classroom. It ensures learner centered classes. ICT enables the students work independently with technologies with a goal of arriving at a specified level of mastery of a given knowledge set. It also provides flexibility of learning. Using ICT, the students can improve their language skills and introduce with new language items easily. Information and communication technology helps the students to perform better in language learning than with regimented traditional classroom teaching. Open Universities in India are also providing technologybased English language learning facilities to the students from secondary level to masters' level. While technology can influence the way students are taught, it can also bring about the development of collaborative skills as well as knowledge creation skills. ICT enabled education will ultimately lead to the democratization of education and it has the potential for transforming higher education in India. To sum up, use of ICT in a language classroom is essential to spread the knowledge of English knowledge.

References:

Annual Report, 2009-2010, Department of Social Education and Literacy & Department of Higher Education, Ministry of Human Resource Development, Government of India, New Delhi.

Arora, P. (2007). The ICT Laboratory: An Analysis of Computers in Public High Schools. *Rural India, American Association of Clinical Endocrinologists (AACE) Journal.* 15(1), 57-72. Columbia University New York, USA, Print.

Bhattacharya, I. & Sharma, K. (2007). India in the Knowledge Economy–An Electronic Paradigm. *International Journal of Educational Management*. Vol. 21 No. 6, Pp. 543-568.

Duffy, T., & Cunningham, D. (1996). Constructivism: Implications for the Design and Delivery of Instruction. *Handbook of Research for Educational Telecommunications and Technology*. Pp. 170-198. New York: Macmillan.

Eriksen, T.H. (2001). *Tyranny of the Moment: Fast and Slow Time in the Information Age.* London: Pluto Press.

Hornby, A.S., Et Al. (Eds). (2002). *Oxford Advanced Learner's Dictionary*. New Delhi: Oxford University Press.

Information and Communication Technology in Education a Curriculum for Schools and Programme of Teacher Development, Division of Higher Education, UNESCO, France, 2002 Print.

Koul, L. (2010). *Methodology of Educational Research*. Noida: Vikash Publish House.

Lebow, D. (1993). Constructivist Values for Instructional Systems Design: Five Principles Toward a New Mindset. *Educational Technology, Research and Development.* 41(3), 4-16.

Mathew, Mamman., Et Al. (Eds). (2016). *Manorama Year Book*. Kottayam, India: Malayala Manorama.

Mcalan, A. (1985). The Uses of Follow Up: Television in The Classroom. *ELT Journal*. XXX/3, 303-309.

Mcgorry, S. Y. (2002). Online, but on target? Internet-Based MBA Courses: A Case Study. *The Internet and Higher Education* 5(2), 167-175.

Meera, S. (2000). Relative Effectiveness among Different Modes of Computerbased Instruction in Relation to Students' Personality Traits, Bharathiar University.

Mooij, T. (2007). Design of Educational and ICT Conditions to Integrate Differences. *Learning: Contextual Learning Theory and A First Transformation Step in Early Education*. Computers in Human Behavior 23(3), 1499-1530.

Oliver, R. & Towers, S. (2000). Benchmarking ICT Literacy in Tertiary Learning Settings. In R. Sims, M. O' Reilly & S. Sawkins (Eds), *Learning to Choose: Choosing to Learn. Proceedings of the 17th Annual ASCILITE Conference*. P 381-390, Lismore, NSW: Southern Cross University Press.

Pedro, F. (2001). Transforming on-Campus Education: Promise and Peril of Information Technology in Traditional Universities, *European Journal of Education*. 36(2), 175–187.

Pun, Min. (2013). Use of Multimedia Technology in English Language Teaching: A Global Perspective. *Crossing the Border: International Journal of Interdisciplinary Studies*, Volume 1; Number 1, Pp 29-38.

Richard, C. J. (1986). *Approach and Methods in Language Teaching*, Cambridge: Cambridge University Press.

Routledge Encyclopaedia of Language Learning and Teaching. 2004 Edition, London: Routledge.

Schmidtlein, F. A. & Taylor, A.L. (2000). Identifying Costs of Instructional Technology in Higher Education, Tertiary Education and Management 6 (4), 289–304.

Shukla, Satishprakash S. (2012). *Information and Communication Technology in Education*. Agra: Agrawal Publications.

Singaravelu, G. & Muthukrishnan T. (2007). ICT: A Boon for Higher Education. Vol. 6, No-12., *Online International Interdisciplinary Research Journal*. Volume-II. Issue-I.

Subbiah, S. (2005). "Application of ICT in English Languages Teacher Education." Bharathidasan University.

Thakur, A. S. & Thakur, Abhinav. (2013). Essentials of Educational Technology, Management & Action Research. Agra: Agrawal Publications.

United Nations. Development Programme (UNDP) Report (2003). New York. Oxford. Oxford University Press.

Voller, P. & Steven, W. (1993). Feature Films as Text: A Framework for Classroom Use. *ELT Journal* XLVII/4, 342-349.

Walsham, Geoff. (2010). ICTS for the Broader Development of India: An Analysis of the Literature. *The Electronic Journal on Information Systems in Developing Countries, (EJISDC)* 41, 4, 1-20, Judge Business School, Cambridge University.