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has participated / presented a paper titled **Impact of ICT on Higher Education in India with special reference to Tier 2 Higher Education Institutions**

In the National Conference on

"Higher Education in India: Challenges and Opportunities"

jointly organized by PES Institute of Technology and Management & PES Institute of Advanced Management Studies, Shivamogga on 15th Nov 2019 at PESITM Campus, Shivamogga.

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Impact of ICT on Higher Education in India with special reference to Tier 2 Higher Education Institutions

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ABSTRACT

Globalization and technological change has created a new paradigm global economy "powered by technology, fueled by information, driven by knowledge and converting manpower to mind power". Information and Communication Technology allow users to participate in a rapidly changing world in which all major areas are exponentially transforming by access to varied and developing technologies.ICT can be employed to give users quick access to ideas and experiences from a wide range of people, communities, cultures. Rapid development of ICT tools helps in finding, exploring, analyzing, exchanging and innovatively presenting information without discrimination.

Higher education in India is experiencing a major transformation in terms of transdisciplinary, access, equity and quality. This transition is highly influenced by the swift developments in ICTs all over the world. This study attempts to investigate the availability, utilization and challenges of ICT provided by Educators for effective teaching and learning. The research findings strongly indicate that ICT has great impact on teaching and learning in Higher Education Institutions which is gradually taking its path. There is need of more efforts by the rural stakeholders, which is the greatest challenge through which nation knowledge economy can be revolutionized. All the stakeholders should reanalyze their roles, teaching and vision to build future transdisciplinary strong knowledge economy. At the same time the optimal utilization of opportunities arising due to diffusion of ICTs in Higher education system presents a profound challenge for higher educational institution. Based on the findings, suggestions and recommendations have been made. The study recommends among others strategic for maximum utilization of ICT and these facilities should be made available for effective teaching and learning of mentor education programs. It highlights the impacts and benefits of ICT in education, its limitations and challenges to education systems.ICT enabled education in Tier 2 areas can be an innovative option to fill the literacy gap and to upgrade the teaching-learning process in the Tier 2 institutions for tapping the huge reserves of human resources.

Keywords: ICT, Corporate Social Responsibility, Transdisciplinary, Educator Autonomy, World University Rankings, Content Developer

INTRODUCTION

The Economic growth of the country not only depends on natural resources, technology and capital but mainly on the quantity and quality of manpower that is efficiency and productivity of workforce, adequate investment in the field of education should be made. Higher education is a strong contributor to sustainable economic development of the nation. It also plays a large and equally important role in improving human living with socially conscious, cultured liberty, equality, fraternal spirit, and justice for all. Higher education aims to serve as a hub for developing ideas and innovations that enlighten individuals and help propel the country forward socially, culturally, artistically, scientifically, technologically and economically.

India has a huge potential in global education, given its share of youth population. India has jumped significantly in The Times Higher Education World University Rankings 2020, with 56 institutions making it to the list, up from 49 previously. According to the Times Higher education World university rankings 2020 in the current year it is the fifth most represented nations [1].

Worldwide research has shown that ICT can lead to an improved student learning and better teaching methods. A report made by the National Institute of Multimedia Education in Japan,

proved that an increase in the use of ICT in education with integrating technology to the curriculum has a significant and positive impact on students' achievements. The results specifically showed that the students who are continuously exposed to technology through education has better 'creative knowledge', innovative capabilities, presentation skills and are ready to take more efforts into learning as compared to their counterparts. Education programs that use cutting-edge technologies rarely achieve long term success.

In the last fifteen years, India has witnessed the inclusion of developments in ICTs in Higher Education system. ICTs allow users to actively participate in a rapidly changing world in which activities are increasingly transformed by access to varied and developing technologies. India is one of the fastest growing telecommunications sector with over 1.1 billion connections and is the second largest in the world. The communication services available in the country are comparable to the best in the world and major technology shifts like 3G, 4G/LTE have been adopted in line with the developed world. Even then ICT is a major challenge which is flexible and dynamic to our higher educational system to comprehensively integrate the technology to support, enhance and optimize the delivery of information.

Statement of the Problem

The quality of the higher education may be enhanced by developing the mindset adaptability of ICT impact and ICT enabled initiatives taken by UGC and Government in Tier 2 areas. Due to the rapid revolution in the communication sector, in Tier 2 areas the technical knowledge is being used for their general business and for entertainment it has been failed in adopting in higher learning centers. This has created a gap between Tier I cities and other Tier II and rural centers.

Objectives

1. To analyze the present trend of ICT enabled teaching in Tier 2 areas.

2. The benefits of Implementation of ICT to enhance the quality of education and employability skills.
3. Initiatives taken by Government of India and Industries to encourage E-Learning in regional languages.

Access and Equity in Higher Education

Gross enrolment Ratio (GER) in Higher Education in India has increased from 21.5 in 2012- 13 to 25.8% in 2017-18. The National Education Policy aims to reach 50% by 2035, in order to fulfill the aspirations of our youth and form the basis for a vibrant knowledge economy. As on 31.03.2018 there are 958 Degree Awarding Universities / Institutions and Students Enrolment of 366.42 Lakhs in Higher Education. There are 903 Universities, 39050 Colleges and 10011 Stand Alone Institutions listed on AISHE web portal.
60.48% Colleges are located in Rural Area. Only 3.6% Colleges run Ph.D. program and 36.7% Colleges run Post Graduate Level programs [2].

After independence, there has been a phenomenal growth in all these numbers. The phenomenal increase in enrolment of this order would not have been possible without the growth in the number of institutions of higher learning, both universities and colleges in particular and increase in intake capacity of courses but too much early specialization and streaming has developed rigid boundaries and fields along with narrow view of what education constitutes. Hence, it has failed to develop creative, intellectual curiosity, spirit of service and strong ethical individuals.

The demand for transdisciplinary Higher education is expected to rise steeply in the forthcoming years to compete internationally. The higher education should be revolutionized to create world class multidisciplinary Universities, education institution across the country, especially in areas lacking socio-economical facilities which are a big challenge.

Impact of ICT in Higher Education

ICT and its importance are growing exponentially in all the areas. They have become most potent

tools for diffusion of knowledge and information. The use is seen from the perspective of innovative pedagogies, rapid content delivery, effective content development and quality in overall education.

The E-Learning, Blended Learning, Video-based learning, Mobile-based learning, Usage of Virtual Reality (VR) and Augmented Reality (AR) for learning or flipped classroom model of teaching is beginning to take shape globally as well as in India.Projections show that the e-learning market worldwide is forecast to surpass 243 billion US dollars by 2022 which clearly shows that e-learning has become a global trend[3].

Internet is the main ICT to spread education through these modes. Coupled with the field of advanced learning technology which deals with methods, and technologies to learn, use and be aware of using networked and/or multimedia technologies which makes learning easier. Advanced learning technology facilitates both linear which is highly conductive to customized individual style and Collaborative learning provides learning platforms either synchronously or asynchronously for groups of individual over a network leading to creative engagement and knowledge sharing with innovative approach.

The typical ICT infrastructure would include learning objects or content, security infrastructure, platforms for content delivery etc.They create a digital identity of the stakeholders without geographical barriers in the academia or professional as well as connect them to each other to explore the best practices.

A high level of participation and greater interaction between individuals in groups is facilitated by E-learning thereby impacting upon individual in a profound manner (Bhattacharya and Sharma, 2007).E-education can provide access to the best International gurus and the best practices or knowledge available through which an individual can explore international excellence of knowledge (UNESCO, 2002).ICTs are the ideal mechanism to bridge the gap by complementing both formal education system as well as distance learning systems (Neeru, 2009).

E-learning is emerging as an important strategy to provide widespread and easy access to quality higher education. Although, presently the initiatives for development of E-learning in India are continuing in a scattered manner. Availability of quality content in regional languages also acts as a barrier for delivering ICT-based education in rural areas. Government and UGC is advocating and making efforts to enhance the quality of Tier 2 institutions in higher education by framing policy guidelines for their integration in classroom and other activities.

To support the Universities, the University Grants Commission (UGC) and Government has taken some ICT enabling initiatives, few of which are: eNetwork, UGC infonet, Consortium, Information and Library Network INFLIBNET, E-learning, Content Development and MOOCs e-PG-Pathshala, etc.[6] AISECT is Empanelment with State Skill Development Missions in new project states like UPSDM, GLPC, HRSRLM, RSLDC, OLM along with MPSRLM. DDUGKY/Aajeevika Skills. Moreover, about 45 lakh people in semi-urban and rural India have been impacted through the various skilling, vocational training, financial inclusion, e-governance and other developmental initiatives [7].

Impact of ICTs in Pedagogy for Quality Teaching Learning

Another most important dimension of higher education sector influenced by ICT integration is improving quality of teaching-learning by revolutionizing the curricula which incorporates an individual to access to variety of information sources, forms and types; student centered learning settings based on information access and inquiry; learning environments or problem-centered and inquiry based activities, authentic settings and examples. Educators should excel themselves as mentors rather than content expertsto accept the challenges of pedagogical changes, to keep close watch on developments and changing needs of industry to ensure that they are relevant, able to shape and produce competent students who are ready to deliver. Therefore, the incorporation 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. In the contemporary competitive environment the Life-long up gradation has become the driving force to sustain in any area of concern. Therefore to reinforce and / or exponentially progress this knowledge-driven growth, new technologies, skills and capabilities are needed. The transformation towards development of educational programs is well supported by and encouraged by the emerging instructional technologies. Companies falling under the CSR (Corporate Social responsibility)mandateare spending 2% of their average profit towards socio-economic responsibility and have also taken initiatives like multi-dimensional project focusing on personal development, multi-disciplinary knowledge, skill development through vocational trainingand critical-creative thinking.

Impact of ICTs in capacity building/enhancing of educational personnel

National level institutes are providing leadership role in enhancing technical and managerial manpower in different disciplines through ICT networks and collaborations which has very large potential. The CSR funds utilization are gradually increasing towardstechnology facilitated learning and interacting, research excellence, aiming in preparation of staff regarding innovative pedagogic methods, easy sharing of new practices among teaching community which results in widening the opportunities for their participation.Mission10X towards enhancing the employability skills more than 250 selected teachers go through an intensive 2 year program in building improved teaching competencies as part of Wipro Science Education Fellowship. The capabilities of competent and trained academic experts can be made available to larger stakeholders through flexible and virtual settings. To promote and improve the digital culture in higher education Government has instituted the National Award for innovative use of ICT to motivate the educators for innovative use of ICT in teaching-learning[4].

Benefits of ICT in Higher Education to Main Stakeholders

Students:
- Transdisciplinary, Learner-centered approach
- Through increased access, an individual can excel as Innovative thinker and Creative knowledge gainer
- Flexibility of content and delivery
- Combination of work and education
- Higher-quality of education and new-ways of interaction.

Educators:
- To excel progression and Career management
- Content developers
- Integration of skills in existing curricula
- Curricular changes in instructional design related to the use of IT
- Technical support specialists
- Education administrators.

Employers:
- High quality, cost effective competitive professional development in the workplace
- Upgrading of employee skills, increased productivity and developing of a new learning culture
- Sharing of costs and of training time with the employees
- Increased portability of training.

Governments:
- Strengthen the nations knowledge economy
- Increase the capacity and optimistic cost effectiveness of education and training systems
- To reach Tier 2 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 institutions and curricula to the emerging networks and IT resources
- To promote innovation and opportunities for lifelong learning.

Challenges in implementation of ICT enabled Higher education system:

Although ICT has the potential to improve Education system of a country to a great extent, yet it is not thecase in the developing countries. There are multiple issues and challenges confronting the implementation of ICT education in Institutions and the problems are much moremagnified in case of remote villages and rural areas. For Tier 2 institutions in specific, theintroduction of ICT faces hindrances in the form of internal and external barriers.

Lack of infrastructure

In Tier 2 areas where there are many old college buildings, extensive reconstruction to ensure proper electrical wiring, heating/cooling and ventilation, safety and security would be needed. Another basic requirement in Tier 2 areas is the availability of electricity and telephony where large areas are still without a reliable supply of electricity and the nearest telephones are miles away. Policymakers should also look at the omnipresence of different types of ICT in the educational system in particular at an affordable Internet service. ICT use in education should follow use in society but which should not be lead.

Lack of Educator Autonomy

The major deterioration of education quality is lack of autonomy given to educators in the current education system. Hindrance in individual freedom to innovate, to compete, to cooperate, to govern and utilize optimal regional resources, to excel progression and Career management.

Lack of trained Educators& Content developers

A major obstacle in the use of ICT education is the lack of knowledge and skills. There is scarcity of dynamic teachers formally trained in ICT. Moreover, there is hardly any quality enhancement imparted on a regular basis to faculty involved in ICT education.

Unfavorable organizational culture and poor attitude and beliefs

Often in developing nations, the educational organizations fail to perceivethe importance and seriousness of the role of ICT in education enhancement. Also, the teaching faculty attitudes and beliefs are outdated and orthodox. They are unaware and rigid and not willing to adaptto the change.

Shortage of time

In higher education, Educators are usually burdened with multiple tasks other than educating. Due to this they do not have time tokeep oneselfupdated with the latest technologywhich hinders in the design, development andincorporate technologycollaborativelyinto teaching and learning field.

Issues of maintenance and upgrading of equipment

Maintenance and upgrading of ICT equipments is subject to their limited financialresources. Largely, the government initiatives are restricted by budgetary constraints. The ICTprojects in rural areas are not self-sustainable. When the projects launched by government orprivate sector phases out, the maintenance of equipments will not be done in time.

Insufficient funds

Appropriate and latest hardware and software facility availability determines the effective and the efficient usage of technology. In developing countries, technology implementation into the Education system is a difficult task as it requires a magnum of funds, infrastructure and support facilities. Lackor insufficiency of finances leads to redundant and obsolete infrastructure and equipments leaving a huge gap in the process of enabling ICT skills and imparting ICT education, thereby rendering the entire ICT experience meaningless.

Challenge of language and content

English is the dominant language of the Internet and estimated 55.5% of online content is in

English.A large proportion of the educational software produced in the world market is in English. For developing countries like India where English language proficiency is not high, especially outside metropolitan areas, this represents a serious barrier to maximizing the educational benefits of the World Wide Web.

Shortage of equipment

There is lack of computers and computer-related resources in Tier 2 institutions. There is a mismatch between thecomplementing resources and inappropriate combination of ICT resources result into reduceddiffusion of technology as well as poor ICT understanding in these educational institutions.

Lack of technical support

Most of the Institutions face issues related to technical know-how, shortage of trained technical personnel and absence of ICT service centers in Tier 2 etc. Technical support specialists are essential to the continued viability of ICT use. Without their support, much time and money may be lost due to technical breakdowns. One of the major obstacles in optimizing computer use in institutions has been the lack oftimely technical support.

Resource related issues and internet

According to the latest report by the Internet and Mobile Association of India (IAMAI) and the Indian Market Research Bureau (IMRB) released in February this year, mobile internet penetration stood at 23 per cent in the country, with only 9 percent of rural people having access to the technology [6].Tier 2 institutions usually face trouble with respect to the availability of ICT related resources such assupporting infrastructure, uninterrupted electricity andsupplementary resources. Despite being an integral component of the ICT, internet is lacking in most Tier 2 institutions due to high fees charged by internetproviders and even where there is internet, slow or inconsistent connectivity destroys the very essence and impact of ICT.

Conclusion: It is evident from the study that, there has been tremendous efforts taken in ICT

implementation at various levels. Be it the government authorities or institutions or industries many initiatives have been planned for the adoption of technology in teaching learning. All of these seem to be very overwhelming many times when considering an Tier 1 educator's perspective. Which fails in Tier 2 institutions because of broadband penetration in rural areas is only 11.78% in urban is around 68%, availability of regional web-enabled and mobile compatible learning content and maturity of the consumers in accepting the digital format of education. Educators and students in non-metropolitan areas should be educated about the major paradigm shift from conventional teaching and learning. The triple model interface between academics, industry and government may be able to resolve this dissonance.

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