IMPORTANCE OF INFORMATION TECHNOLOGY IN EDUCATION AND THEIR PRACTICES ITS CHALLENGES IN RURAL AREA IN JHARKHAND STATE

Abstract

The incorporation of information technology within the educational setting and its utilization in the pedagogy of information technology. The field of information technology (IT) has a wider scope of interest in comparison to conventional academic conversations. Its objective is to involve a broader range of individuals, including educational practitioners like teachers and professional developers, in discussions related to innovative practices. The target audience of our study also encompasses researchers who are interested in exploring new and advanced innovations that require further and rigorous experimentation. The main goal of Information Technology Education: Innovations is to offer timely updates to our readers concerning new developments in the utilization of information technology in educational settings. Education is a perpetual and uninterrupted process, thereby requiring unimpeded availability at all times and in any place. The ongoing expansion of the information explosion phenomenon necessitates the need to obtain access to this extensive volume of information. In order to effectively address the varied needs of learners, it is imperative that education incorporates Information Technology (IT) as an essential component. The acquisition of technological literacy is considered a crucial requirement within society, demanding individuals to possess a high level of competence in this particular field. In order to effectively mitigate the challenges posed by illiteracy and poverty, it is crucial to enhance the accessibility of educational opportunities and decrease the financial

Authors

Dr. Rahul Deo Sah
Dr. Shyama Prasad Mukherjee University
Ranchi, Jharkhand, India

Dr. Tanya Sharma
Magadh Mahila College
Patna University
Patna, Bihar, India

Dr. Namita Singh
Dr. Shyama Prasad Mukherjee University
Ranchi, Jharkhand, India

Dr. Rajendra Kumar Mahto
Dr. Shyama Prasad Mukherjee University
Ranchi, Jharkhand, India

burdens associated with them. Information technology (IT) offers a feasible solution in this context. Limited awareness of the job market and career options among individuals residing in rural areas has emerged as a significant impediment to development, particularly in light of the rapid evolution of work opportunities. Historically, rural areas have predominantly offered employment opportunities in the public sector, with limited information and guidance regarding emerging employment prospects in the private sector, both formal and informal. Hence, it is imperative to prioritize the dissemination of comprehensive information regarding the training programs, encompassing the outcomes of duly validated evaluations associated with said training initiatives.

Keywords: Information technology, Rural Area, Employment

I. INTRODUCTION

Information technology (IT) possesses a broader appeal compared to typical scholarly discussions, as it aims to engage a wider audience that includes educational practitioners, such as teachers and professional developers, in the discourse surrounding innovative practices.[1] Our audience also includes researchers seeking novel and advanced innovations that necessitate additional and rigorous experimentation. The primary objective of Information Technology Education: Innovations is to provide timely and comprehensive updates to our readers regarding novel advancements in the application of information technology within educational settings. We achieve this by:

- Publishing innovative, cutting-edge practices early, often before generalizable studies become available.
- Exposing the reader to a diverse range of mindsets, emerging views and unique tactics.
- Giving useful, timely feedback on submissions through a rigorous review process that is one of collegial mentoring.
- Being a flagship for new and emerging innovations in educational information technology.
- Acknowledging and embracing the diversity of teaching and learning models in use around the world

1. Importance of Information Technology in Education

- **Need:** Education is a lifelong process therefore anytime anywhere access to it is the need
  Information explosion is an ever-increasing phenomenon therefore there is need to get access to this information
  Education should meet the needs of variety of learners and therefore IT is important in meeting this need
  It is a requirement of the society that the individuals should posses' technological literacy
  We need to increase access and bring down the cost of education to meet the challenges of illiteracy and poverty-IT is the answer

- **Importance**

  - access to variety of learning resources
  - immediacy to information
  - anytime learning
  - anywhere learning
  - collaborative learning
  - multimedia approach to education
  - authentic and up to date information
  - access to online libraries
  - teaching of different subjects made interesting
  - educational data storage

- distance education
- access to the source of information
- multiple communication channels-e-mail, chat, forum, blogs, etc.
- access to open courseware
- better accesses to children with disabilities
- reduces time on many routine tasks

2. Why IT is Important?

The utilization of information technology facilitates the development and expansion of the commerce and business sector, resulting in the attainment of optimal productivity. The duration required for various sectors to generate business has been significantly reduced due to the advancements in Information Technology. The system offers electronic security measures, facilitates storage capabilities, and enables efficient communication. In order to carry out the tasks at hand, the field of information technology relies on the utilization of computer applications. Computing devices facilitate the interconnection of information technology with various global entities. The implementation of a record-keeping system enables employees to effectively manage and organize information pertaining to a diverse range of clients across multiple companies. The utilization of online platforms for patients to communicate with physicians and seek guidance pertaining to their health concerns has proven to be beneficial. Furthermore, the system effectively facilitates the proper management of patient records. In order to gather information, various techniques and methodologies are employed, including programming and coding, data conversion, data communications retrieval and storage, and system analysis. The education sector has undergone significant transformations with the advent of Information Technology. In order to effectively operate a business and achieve desired results, the utilization of computers, software, and the internet proves to be highly advantageous. Many companies have implemented virtual vaults as a novel storage system that enables users to securely store and retrieve their documents.[2] The IT department is implementing a robust communication system to facilitate efficient and effective communication. The utilization of computers and the internet enhances the caliber of education. The pedagogical approach to instruction and learning has exhibited advancements, with information technology playing a significant role in enhancing educational systems, student engagement, and instructional methodologies. It has been observed that contemporary students exhibit a greater inclination towards embracing modern technologies and displaying a heightened interest in online instructional methods. The learning methods employed by the institution rely on direct engagement between students and teachers, as well as the provision of specialized classes tailored to meet the needs of exceptional learners. Students are not obligated to adhere to conventional methods of learning. The introduction of Information Technology in the education field has facilitated the realization of these advancements, thereby highlighting the significance of technology. [3]The pervasive influence of Information Technology is evident across various domains, encompassing professional endeavors, educational pursuits, recreational activities, and healthcare practices. Information technology (IT) is utilized across various sectors, ranging from ministries to classrooms, in order to optimize outcomes and achieve optimal results. Physicians utilize information technology to access and review record entries, patient history, and prescribed dosage in order to make informed decisions and take appropriate actions. The application of Information Technology is evident in the agricultural sector, where it serves as a means to enhance productivity. The integration of

satellites with the agricultural sector facilitates the anticipation of monsoons and smog occurrences. The utilization of drone technology enables the facilitation of various agricultural practices, including mass data collection, land surveys, pesticide application, seed planting, water irrigation, and fertilizer usage. The preceding discourse elucidates the significance of information technology in the current era of the 21st century. Information technology is an indispensable requirement in every field. The absence of internet and technical systems renders businesses, educational institutions, agricultural operations, and healthcare sectors incapable of achieving their anticipated outcomes. The significance of technology in contemporary society cannot be overstated.

Uses of Information Technology: We can see the uses and **role of** information technology in our society in many fields:

- **Business:** Since the arrival of computers, the entire face of the business world has changed. To run the different departments of business swiftly, the use of Information Technology is important and it is possible with computers and software. The use of information technology can be seen in departments such as finance, human resources, manufacturing, and security. The role of IT can't be ignored.

- **Education:** Technology enables teachers to be up to date with new techniques and help their students to be updated with the latest technologies such as the use of tablets, mobile phones, computers, etc. in education. Information technology not only helps students to learn new things but also helps students to college dropouts.

- **Finance:** Information Technology opens the doors for traders and common people to do online purchases. Banks keep records of all the transactions and account through computers. Unlike before, now transactions and other deals have become faster and easier.

- **Healthcare:** With Information Technology, the field of medicine and health has been seeing tremendous improvements. For doctors, sending and receiving information, checking patients, and discussing with other experts have become very convenient. Also, it reduces the time taken on paperwork.

- **Security:** Online transactions and keeping records of all online transactions are now safer than in earlier times. Only proper management and a person responsible for the system can access the data online. It prohibits any random person from checking the details. All these have been made possible by keeping the system passwords proof. Only permissible authorities can access your information.

- **Communication:** With improvements in information technology, globalization has increased. The world is brought closer, and the world's economy is quickly becoming a single interdependent system. Information can be shared quickly and easily from all over the globe, and barriers of linguistic and geographic boundaries can be torn down as people share ideas and information with each other.

- **Employment:** With Information Technology, new jobs have been introduced. It creates new jobs for programmers, hardware and software developers, systems analyzers, web designers, and many others. Information Technology has opened entirely new fields and thousands of jobs for IT professionals.

II. INFORMATION TECHNOLOGY IN EDUCATION

This study examines the influence of continuous progress in information technology (IT) on the educational sector, with a particular emphasis on the domain of Information Technology in Education. The profound impact of emerging technologies on global lifestyles, occupations, and recreational activities is attributed to the rapid rate of transformation. The emergence of novel and advancing technologies poses a significant challenge to traditional approaches in education, including instructional methods and educational system administration. The discipline of information technology, while being a prominent area of study in its own right, is exerting a considerable impact on diverse academic fields.[4][5] The emergence of seamless global communication has greatly facilitated the immediate availability of a vast array of information, thereby presenting a challenge to the cognitive processes involved in comprehending and assessing this information. The convergence of rapid communication and increased accessibility of information technology across diverse contexts, including residential, professional, and educational environments, holds the promise of revolutionizing the concept of learning as a continuous lifelong pursuit. The ongoing evaluation of the learning process is propelled by the need to keep up with the swift progress of technological advancements. [6]

1. **Significance of IT in Education:** The availability of a diverse range of educational materials and resources. In the current era marked by significant technological advancements. The field of information technology (IT) offers a wide range of resources that have the potential to greatly improve teaching abilities and support the process of learning. The incorporation of information technology has greatly facilitated the delivery of audiovisual education. The accessibility of educational materials is increasing and continuing to grow. The integration of this comprehensive and immersive approach within the IT curriculum cultivates a mindset among students that computers are valuable tools to be employed in diverse academic domains. It is crucial for individuals to employ emerging multimedia technologies in order to proficiently communicate concepts, articulate projects, and arrange information within their professional pursuits. The prompt underscores the significance of expeditious access to information.

2. **Information Technology:** The field of information technology (IT) has played a pivotal role in expediting the dissemination of educational materials. In the present era, marked by the widespread use of computers and internet networks, the dissemination of knowledge has experienced a notable acceleration. This has resulted in increased convenience and flexibility for individuals seeking education, regardless of their geographical location or time limitations. The incorporation of novel information technology (IT) has often taken place within preexisting frameworks of work and lifestyle, resulting in limited disturbance to their underlying structures. To provide an example, the traditional office environment, which involves secretaries using keyboards and physically exchanging written notes on paper, has demonstrated significant

durability, even in the face of replacing typewriters with personal computers. The process of acquiring knowledge at any given moment. In the contemporary era characterized by the prevalence of computers and web networks, the process of knowledge dissemination has accelerated significantly, enabling individuals to acquire education at an unprecedented rate. Individuals have the flexibility to engage in studying at their own discretion, regardless of the time of day or geographical location, due to the significant growth in the field of information technology.

3. **Collaborative Learning:** The term "collaborative learning" pertains to an instructional methodology in which students actively participate with their peers to collectively construct knowledge and foster comprehension. This approach highlights the significance of social interaction and collaboration. The incorporation of information technology (IT) has enabled the facilitation of collaborative learning and teaching in various group and cluster environments. By leveraging online platforms, individuals possess the capacity to convene and engage in collaborative efforts aimed at achieving a common goal. In the contemporary era, the dissemination of educational content is made possible through the utilization of streamlined postal networks, both landline and mobile telecommunication devices, and computerized recording and playback mechanisms.[7][8][9] The Internet and its affiliated websites have gained significant recognition among children in developed nations and educational elites in various regions. Nevertheless, it remains of minimal significance to a substantial segment of the populace who are deprived of even the most basic necessities for sustenance.

4. **The Utilization of a Multimedia Approach in Education:** Audio-Visual Education pertains to the purposeful and methodical procedure of creating, arranging, and utilizing diverse tools and resources that stimulate the senses of vision, hearing, or both, with the explicit aim of promoting educational goals. A diverse range of instructional tools are utilized, encompassing static and dynamic visual aids such as still and moving images, filmstrips, television, transparencies, as well as auditory aids like audiotapes and records. Additionally, more advanced technological tools such as teaching machines, computers, and videodiscs are also employed in the instructional process. The proliferation of audio-visual education has paralleled the progress of technology and the evolution of learning theories.

5. **Research in the Field of Educational:** psychology indicates that the incorporation of audio-visual materials in the learning process offers numerous benefits. All forms of knowledge acquisition are fundamentally rooted in the cognitive process of perception, whereby sensory organs gather and interpret information from the surrounding environment. The occurrence of higher processes such as memory and concept formation is contingent upon prior perception. Individuals possess a finite capacity to process information, thereby limiting their ability to attend to a restricted quantity of stimuli at any given moment. Moreover, the selection and perception of said information are subject to the influence of prior experiences. Studies have revealed that, under comparable circumstances, a greater amount of information is assimilated when it is presented concurrently through two sensory modalities (such as vision and hearing), as opposed to a singular modality. Moreover, the process of learning is further facilitated when the educational content is effectively structured and the resulting organization is readily apparent to the learner. The results of this study indicate the significance of incorporating

audio-visual materials into the educational process. These tools have the potential to enhance the perception of crucial features, can be meticulously structured, and may necessitate the utilization of multiple modalities by the student.

6. **Reliable and Current Information:** The accuracy and currency of the information and data available on the internet are inherent qualities. The internet, consisting of interconnected computer networks that follow standardized protocols, enables direct communication between computers and the software they run, thereby providing reliable and precise information.

7. **The Digital Library:** The internet enables the provision of various operational and experimental services, one of which is the availability of an online library. This online library provides access to a significant volume of data. In the context of the IT curriculum, students are encouraged to adopt a perspective that regards computers as versatile tools that can be effectively employed in various academic domains. The effective utilization of contemporary multimedia technologies is crucial for individuals to communicate concepts, clarify projects, and organize information in their professional pursuits. This requires individuals to carefully select the medium that is most suitable for effectively conveying their message, to arrange information in a hierarchical manner, and to establish connections between various pieces of information to create a document that encompasses multiple dimensions.

8. **Distance Education:** Distance learning is an instructional methodology that encompasses the acquisition of knowledge and competencies through remote modalities, in contrast to the conventional physical classroom environment. The advent of communication technologies in the latter part of the 20th century, specifically multimedia and interactive platforms, has introduced new prospects for the progression of home-based education. The aforementioned advancements possess the capacity to enable unparalleled expansion in both personal and organizational settings, particularly within the domain of part-time education.[10] The phrase "distance learning" originated during a time characterized by continuous progress in communication technology. It was introduced as a more accurate and comprehensive alternative to several terms, including "home study," "independent study," "external study," and the commonly employed yet restricted "correspondence study." The application of advanced communication technology has been progressively employed in addressing concerns that distance learning is an inadequate substitute for conventional formal education, in light of the escalating need for educational opportunities.[11][12] A noteworthy motivating factor that has been observed pertains to the reduction in costs per student. Concurrently, students who partake in self-directed studying within their own residences benefit from the reduction in both travel time and the accompanying expenses. Distance learning is a method that facilitates improved access to education for students who face limitations in pursuing conventional in-person learning opportunities.[13][14][15] These limitations may arise from factors such as restricted course availability, geographical remoteness, familial responsibilities, or personal disabilities. Concurrently, it accommodates students who have a predilection for distance education. Moreover, it addresses the needs of individuals tasked with coordinating professional and business education, thus providing a persuasive rationale for reevaluating the most effective approaches to disseminating vital information.

9. **Improved Accessibility for Children with Disabilities:** The emergence of information technology has significantly influenced the experiences of children with disabilities. Information technology (IT) encompasses a diverse array of software and methodologies designed to facilitate the dissemination of educational resources to individuals who face economic disadvantages. Individuals who are born with profound deafness often encounter substantial difficulties in acquiring spoken language abilities, unless they receive specialized instruction during their early developmental years. The presence of congenital deafness can lead to considerable sensory deprivation, which has the potential to greatly influence an individual's cognitive capabilities and their ability to acquire knowledge.[1] Children who encounter auditory impairment during their early developmental stages may not be exposed to comparable levels of linguistic stimulation as their typically hearing counterparts. The critical period of neurological plasticity is recognized to persist until the age of seven. The absence of auditory stimuli during this particular phase of development gives rise to the incapacity to establish synaptic connections, which may potentially lead to an irreversible condition for the child. The linguistic development of deaf children may be impeded relative to their hearing counterparts as a result of a delay in acquiring language skills. The occurrence of academic lag exhibits an accumulative impact, leading to a notable discrepancy in educational achievement between deaf adolescents and their hearing peers, frequently encompassing a duration of four or more academic years. Deaf children who are exposed to sign language as a form of early language stimulation generally exhibit academic performance that is similar to that of their hearing peers.

The integration of information technology in pedagogy is a crucial matter for upholding educational excellence within the system. There are two equally important justifications for the integration of information technology in the field of education. The acquisition of proficiency in utilizing information technology is of paramount importance for students, as the entirety of future occupations will be dependent on this skill. Furthermore, the incorporation of information technology into educational methodologies is crucial for augmenting its quality and effectiveness.

III. INFORMATION SOCIETY CHALLENGES

The advent of the information society presents significant challenges to the education system. In recent times, the expeditious, efficient, and worldwide dissemination of knowledge has established a novel basis for collaboration and collective effort, both at the domestic and international levels. The growing significance of information technology in societal progress necessitates a proactive response to the complexities posed by the information society.

Currently, there is a growing expectation for individuals to possess enhanced core qualifications and a comprehensive comprehension of the implications of information technology implementation on the operations and structure of a company. Organizations are no longer compelled to consolidate all of their operations within a single physical location. Knowledge-intensive functions, such as development and marketing, can be strategically located in countries with a labor market that can provide a pool of highly educated employees. Meanwhile, the actual production activities can be relocated to countries with lower wage levels. The outcome entails the effective management, processing, coordination,

and administration of organizational resources, which plays a crucial role in determining the competitive advantage of the company. In contemporary society, characterized by a growing reliance on information and knowledge processing, there exists a heightened expectation for individuals to possess a robust and comprehensive educational basis as a prerequisite for personal development and advancement. Educational policy within the context of the information society must prioritize the following objectives:

1. **Regaining Trust in Technology:** The proliferation of inaccurate information, significant political instability, and an increase in cyberattacks within recent years have collectively engendered a pervasive sense of scepticism towards technology. Frequently, in instances where circumstances arise that result in business delays or failures, it is customary to attribute responsibility to the underlying technological infrastructure. But these situations aren't created by technology, merely perpetuated by our access to information. However, it is imperative to acknowledge that technology is not inherently negative or defective. The negative perception arises primarily from the improper utilization of technology. By implementing more stringent privacy protection laws, implementing additional security controls, and enhancing compliance measures, businesses can maintain a high level of confidence in the reliability of technology as an asset.

2. **Business Continuity and Disaster Recovery:** How can we ensure that businesses can continue to function amid disruption, political changes, supply chain uncertainty, market shifts, destructive weather events, and public health crises? Organizations are making it a priority to ensure that operations can continue in the face of these obstacles.

3. **Data Protection and Privacy:** The establishment of consumer trust is a challenging endeavor and represents a valuable resource once attained. The findings of a study conducted by Edelman indicate that a significant majority of consumers, specifically 81%, expressed the necessity of establishing trust in a brand prior to making a purchase. The implementation of data protection and information security policies and procedures is crucial in order to establish and maintain consumer trust by safeguarding customer data privacy. Characterized by a sense of ambiguity regarding employment, well-being, and economic security, recent years have had a detrimental impact on individuals who now exhibit a heightened desire to allocate their support exclusively to reliable establishments. In this context, safeguarding data and ensuring information security play a fundamental role in fostering and maintaining this bond between consumers and institutions. The increasing prevalence of online purchasing and contactless buying has heightened the imperative for businesses to strengthen their data protection policies. IT qualifications are developed by means of their integration in all activities in the education sector and The individual citizen must have an active and critical attitude to developments and not passively allow technological development to set the pace.

4. **IT Educational Policy Must Ensure**

    - Up-to-date qualifications in the information society
    - Up-to-date qualifications gained against the background of a high general level of education in the population will be decisive if Denmark is to maintain competitiveness and its share of the global labour market in the information society.

IT skills and IT understanding are thus central prerequisites for the individual, both now and especially in the future.

The advantage of using information technology is that time-consuming work routines can increasingly be performed by means of this technology and time can thus be devoted instead to communicating and informing, to the processing of information and the production of knowledge

IV. THE ROOT CAUSES OF PROBLEMS WITH ADOPTING IT

The discussion will centre on official government policy. To promote both social and economic growth, governments must first and foremost build a strategic policy framework to direct the acquisition and application of IT. Due to poor policies and insufficient investments in the IT sector, emerging economies' IT infrastructure has advanced at a slower rate compared to that of wealthy ones. There are several impediments to the development and use of IT because of problems with the execution and efficacy of IT regulations in many developing countries. Despite the governments' acknowledgement of IT's importance, few concrete steps have been taken to advance the field in these countries. The developed world spends a lot of money on setting up and maintaining its IT infrastructure, while the developing world does not invest nearly as much. When it comes to investing in the growth of IT within their borders, many developing countries just don't have the means. Instead, they need substantial foreign aid to help them develop their IT infrastructure. [17]It has been noted that rich states have not done much to aid the emerging world's IT infrastructure's growth. Funding from rich countries has failed in the past because aid agencies often ignore local expertise and focus instead on finding problems that fit their predetermined beliefs and answers.

Data transport and management are only possible with a well-developed IT infrastructure that includes hardware, software, and communication networks. Experts in information technology are essential for building, implementing, maintaining, and debugging systems. In addition, knowledgeable IT professionals are needed to keep the system running smoothly. Inadequate Basic Information Technology Infrastructure is the main barrier to IT development in Africa and other developing countries. There is a lack of basic infrastructure and networks in developing countries, which impedes the spread, deployment, and improvement of IT. As a result, people are finding it harder to get their hands on cheap Internet, computer, and phone services. It is crucial for any country to set up a basic national IT infrastructure that is easily accessible to the public and connected to international networks. Integration of this infrastructure into the country's business and social life is also essential. There is still a shortage of information technology (IT) resources due to inadequate access to hardware and software in many developing countries.

Opportunities: Any government or organization will need strong leadership and well-defined policies in order to successfully implement and advance technological initiatives. This policy should focus on technology and IT in particular to achieve national development and global IT partnership. The goals of IT transfer, development, and adoption should be outlined in this policy. Cancellation or postponing of IT projects is common due to insufficient funding of any kind. Due to the high price tag associated with acquiring, developing, and maintaining IT infrastructure, a substantial budget is required. The

government's high tariffs, levies, and license fees drive up the price of telecommunications and IT investments. In order to attract investors and lower capital expenditure that may be allocated for other social programs, developing countries should embrace privatization. Policymakers and stakeholders in developing nations should build government-private collaborations in technology training and development in order to produce competent and globally renowned IT experts.[1] Governments should provide tax benefits to businesses that make IT product investments and imports. The formation and funding of non-governmental organizations (NGOs) that work to bring people together is essential. Working together like this has the potential to improve both domestic and international IT infrastructure implementation and utilization. The goal of developing IT policy should be to turn IT spending into a sustainable competitive advantage. As the cost of computers continues to drop, more and more people will be able to afford one or have easy access to one. Even in places where computers exist, access to the internet is spotty. Many developing nations still rely on slower analogue lines rather than more advanced broadband connections. Compared to digital connections, analogue ones are clumsy to set up and prone to dropouts. When building the foundation, these difficulties should be taken into account. Universities and colleges in this area face a significant challenge in helping their countries achieve the Millennium Development Goals, which call for them to take advantage of technological advances.[14] If they want to produce graduates with IT skills that are internationally recognized and can meet national and international needs and norms, universities in developing countries should reassess their goal and curriculum.

V. INFORMATION TECHNOLOGY THEIR IMPACT IN JHARKHAND RURAL AREA

Figure 1: Jharkhand Political Map

Jharkhand, commonly referred to as "the land of forests," possesses abundant natural resources and is steeped in indigenous history. Approximately 75% of the population in the state, which amounts to 32.9 million individuals, resides in rural regions, with a significant portion belonging to indigenous tribal communities. Situated beneath the forested regions of a socioeconomically disadvantaged state in India, characterized by elevated rates of child under nutrition and anemia among women, lies a substantial reservoir of valuable minerals, ranking among the most significant in the nation. This region is characterized by the thriving presence of advanced steel manufacturing facilities and power plants.

The current state of education at the school and college level should be reoriented to better equip students for the challenges they will face in their future lives, particularly in the realm of employment. This implies that the primary objective of basic education should not be centered on vocational training. It is imperative for educational institutions to persist in offering students a comprehensive general education that possesses practical relevance in the contemporary job market. In order to address this, it is necessary for the curriculum to prioritize the cultivation of essential competencies, including communication, critical thinking, and various life skills. India has exhibited a deficiency in the domain of technical and vocational education and training, with current enrolment rates in such institutions remaining significantly lower compared to higher education, amounting to only approximately one-third.

VI. ISSUES AND CHALLENGES

1. **Lack of Awareness:** Limited awareness of the job market and career options among individuals residing in rural areas has emerged as a significant impediment to development, particularly in light of the rapid evolution of work opportunities. Historically, rural areas have predominantly offered employment opportunities in the public sector, with limited access to information regarding emerging employment prospects in the private sector, both formal and informal. Hence, it is imperative to place greater emphasis on the dissemination of information pertaining to the training being offered, encompassing the outcomes of duly validated evaluations conducted on said training.

2. **ICT:** The primary obstacle to the efficient utilization of ICT in governance and development lies in the scarcity of accessible and practical content. Even in the context of transaction-based services, the significance of content cannot be undermined. For instance, if a given service exclusively presents its content in the English language, it poses a challenge for a significant portion of the population to effectively utilize it. The e-District initiative has been implemented in the state of Jharkhand, facilitating the issuance of all certificates through an online platform. The process involves the collection of applications at the Panchayat level, which are subsequently transmitted collectively to the appropriate authorities. Subsequently, the certificates are meticulously prepared, incorporating digital signatures, and subsequently dispatched to the respective Panchayats. Individuals who have submitted applications for certificates can subsequently retrieve them from the designated Panchayat offices.[9] The application has been designed to support bilingual functionality, and to date, approximately 5,000 certificates have been issued. It is noteworthy that a majority of the certificates have been issued in the Hindi language. It is imperative to consider that the efficacy of any application is

contingent upon its utilization in the local language. Another challenge that we encountered pertains to connectivity. In order to ensure the success of any project that involves online transactions, it is imperative to have a robust and dependable connectivity infrastructure. The issue of ensuring connectivity in rural areas frequently presents a persistent challenge. Another concern pertains to the enhancement of capacity among workers at the village level or Panchayat level. Upon commencement of the training workshops for the project, it was discovered that a significant majority, specifically 80 percent, of the participants had not previously encountered a computer. Large-scale projects present various challenges that necessitate the inclusion of strategies within the program design to effectively address them.

3. **Regaining Trust in Technology:** The proliferation of misinformation, political turbulence, and an increase in cyberattacks within recent years has engendered a pervasive sense of skepticism towards technology. Frequently, in instances where circumstances arise leading to business delays or failures, it is customary to attribute responsibility to the underlying technology. However, these circumstances are not instigated by technology, but rather sustained by our ability to obtain information. However, it is imperative to acknowledge that technology is not inherently negative or defective. The negative perception is primarily attributed to the improper utilization of technology. Businesses can maintain a high level of confidence in the reliability of technology as a valuable asset due to the implementation of more stringent privacy protection laws, increased security controls, and improved compliance measures.

4. **Business Continuity and Disaster Recovery:** How can the preservation of business operations be guaranteed in the face of various challenges such as disruptions, political fluctuations, uncertainties in supply chains, shifts in markets, adverse weather conditions, and public health emergencies? Organizations are placing significant emphasis on ensuring the continuity of operations despite the presence of these challenges.

5. **Data Protection and Privacy:** The establishment of consumer trust is a challenging endeavor and represents a valuable resource once attained. Based on research conducted by Edelman, a significant majority of consumers, specifically 81%, expressed the requirement of establishing trust in a brand as a prerequisite for making a purchase. The implementation of data protection and information security policies and procedures is crucial in order to establish and maintain consumer trust by safeguarding the privacy of customer data. Characterized by a sense of ambiguity surrounding employment, well-being, and financial security, recent years have had a detrimental impact on individuals who exhibit a heightened desire to allocate their support exclusively to reliable establishments. In this context, the safeguarding of data and the assurance of information security play a fundamental role in fostering this bond between consumers and institutions. The increasing prevalence of online purchasing and contactless transactions has heightened the imperative for businesses to strengthen their data protection policies.

6. **Challenges Associated with a Remote Workforce:** The COVID-19 pandemic necessitated the transformation of numerous businesses, compelling them to transition their workforce into remote workers, even in instances where the nature of the work was not inherently conducive to remote operations. Historically, workers were not consistently provided with a modern and exclusive device for personal use within their residences. It

is plausible that individuals employed a desktop computer during their work hours, while being limited to a tablet or other mobile device for personal use at their residence. Certain employees encountered difficulties with their Internet connectivity. Certain individuals were compelled to share a computer or other electronic device with members of their household, thereby intensifying the importance of cyber-security. The advent of COVID-19 has led to a significant increase in the number of individuals working remotely. However, it is worth noting that certain employers had already embraced this practice prior to the pandemic, having recognized the feasibility of remote work with the emergence of advanced technologies. The presence of a remote workforce poses various challenges, regardless of whether an organization has a history of employing remote workers or if employers were compelled to swiftly transition to remote work arrangements due to the pandemic. Connect Team, a management consulting firm, has conducted an analysis to identify prevalent challenges commonly associated with remote employees. The aforementioned items encompass:

- Lack of company culture.
- Limited communication with management and colleagues; 85 percent of remote employees surveyed by Gallup said they did not receive sufficient communication.
- Low engagement.
- Setting work hours when employees don't clock in and out; managing employees across several time zones can also be an issue, particularly for scheduling meetings and team projects.
- Technical limitations, such as no company computer or email.
- Tracking and measuring performance.

Up the underlying supporting infrastructure, these issues should be addressed. The challenge to universities and colleges in this region is being an active player in contributing to the realization of the Millennium development goals which states that a country should reap the benefits of the new technology. Universities in developing countries should redefine their mission and review their curricula to produce graduates with universally recognized IT skills, able to meet national and international needs and standards.

VII. CONCLUSION

This study is part of an ongoing effort to investigate and bring attention to the difficulties associated with the implementation of information technology in developing rural areas in the state of Jharkhand. For reasons related to both sustainable development and the function of information technology, it is essential for developing countries to obtain and implement the usage of IT. This region faces difficulties in the transfer and use of information technology due to a number of contributing factors, including ineffective government policies, poor infrastructure, and inadequate training and qualification.

VIII. ACKNOWLEDGE

I express my gratitude to Dr. Tapan Kumar Shandilya, Vice-Chancellor of Dr. Shyama Prasad Mukherjee University, Ranchi, for providing valuable suggestions and

granting permission to enhance the chapter.

REFERENCES

[1] Schoeny ZG. Leadership of information technology in education. Journal of Information Technology for Teacher Education 2002; 11: 245-251. DOI: 10.1080/14759390200200135.
[2] Aksal A F. Are headmaster's digital leaders in school culture. Education & Science 2016;40:77-86.
[3] Kumpikaite V. Human resource development in learning organization. Journal of Business Economics and Management 2008; 9: 25-31.
[4] Yikici B, Altinay Z, Dagli G, Altinay F. The evaluation of strategies used to Õmprove teaching and learning in education society. The Antropologist 2016; 23: 462-479.
[5] Lee V, Chng L, Coombs SJ. Applying self-organised learning to develop critical thinkers for learning organisations. A conversational action research project 2004;12:363-386.
[6] Silins H, Zarins S. What characteristics and processes define a school as a learning organization? Is this a useful concept to apply to schools. International Education Journal 2002;3: 24-32.
[7] Karasar N. Bilimsel araútÕrma yöntemi. Ankara: Nobel YayÕn Da÷ÕtÕm; 2008.
[8] Akpan-Obong, (2007). Information and communication technologies in development: contextuality and promise. Proceedings of the 9th International Conference on Social Implications of Computers in Developing Countries, Sao Paulo, Brazil, May 2007.
[9] Akubue, A. I. (2002). Technology transfer: A third world perspective. The Journal of Technology Studies, 28(1), 14-21.
[10] Albirini, A. (2006). Cultural Perceptions: The missing element in the implementation of ICT in Developing Cultures. International Journal of Education and Development, using ICT. (Online), 2(1).
[11] Al-Gahtani, S. S. (2003). Computer technology adoption in Saudi Arabia: Correlates of perceived innovation attributes. Information Technology for Development, 10, 57-69.
[12] Al-Oteawi, S. M. (2002). The perceptions of administrators and teachers in utilizing information technology in instruction, administrative work, technology planning and staff development in Saudi Arabia, doctoral Dissertation. Ohio University.
[13] Andrade, A. D., & Urquhart, C. (2009). ICTs as a tool for cultural dominance: prospects for a two way street. The Electronic Journal on Information Systems in Developing Countries, 37(2), 1-12.
[14] Aniebonam, M. (2005). Nigerian skills gap. International Journal of Productivity and Performance Management, 54(4).
[15] Apulu, I., & Latham, A. (2009). Information and communication technology adoption, challenges for Nigerian SMEs. TMC Academic Journal, 4(2), 64-80
[16] Bhatt, G. D., & Grover, V. (2005). Types of information technology capabilities and their role in competitive advantage: an empirical study. Journal of Management Information Systems, 22(2), 253-277.
[17] Byrd, T. A., & Douglas, E. T. (2001). An exploratory examination of the relationship between flexible IT infrastructure and competitive advantage. Information Management, 39(1), 41-52

