Assessment of Under-graduate Teachers' Knowledge about Different Aspects of Information & Communication Technology Tools & Devices in Patna Town

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Abstract
Information & Communication Technology (ICT) Tools and Devices have a very important role in today's Higher Education Institutions. Especially after the covid era the role, importance and usage of Information & Communication Technology (ICT) Tools and Devices have increased many folds. Hence to equip the coming generations with latest technology, the teachers must be compatible with all the ICT tools and devices. Hence this study is planned to assess the knowledge of Under-graduate teachers' about different aspects of Information & Communication Technology (ICT) Tools and Devices. For this purpose 300 under-graduate teachers have been selected and data have been collected through interview schedule. The various aspects that were assessed include advantages of ICT tools and devices, disadvantages of ICT tools and devices, role of ICT tools and devices in higher institutions and limitations of ICT tools and devices in higher institutions. Results showed that maximum number of teachers have adequate knowledge about different aspects of ICT tools and devices. Among the various advantages, maximum teachers reported ICT offers new learning technique and make learning accessible at any time as main advantage of ICTs, inequality in access was the main disadvantage of ICT. Enhanced learning and helps in research & innovations were the main role that ICT plays in Higher institutions. Lack of infrastructure was reported as the main limitation of ICT uses in Higher institutions.
Keywords: *Knowledge, Information & Communication Technologies, Advantages, Disadvantages, Limitations, Role*

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I.   Introduction

In the ever-evolving landscape of education, the integration of Information and Communication Technology (ICT) tools and devices has become paramount in fostering innovative and effective teaching methodologies. Teachers, as the architects of knowledge dissemination, find themselves at the forefront of this technological transformation, where their knowledge and proficiency in various aspects of ICT play a pivotal role in shaping the learning experiences of the next generation. As the foundation of any technological endeavor, teachers are expected to possess basic computer skills that extend beyond mere familiarity with hardware and operating systems. Proficiency in utilizing common software applications, ranging from word processors to spreadsheet tools, forms the bedrock of their digital expertise. A teacher's ability to discern reliable online resources and curate relevant content is vital in providing students with accurate and up-to-date information. Moreover, digital communication skills, including email etiquette and collaboration tools, empower teachers to foster effective communication channels within and beyond the classroom. Educational software has emerged as a powerful ally in the pedagogical arsenal, offering diverse tools for interactive and engaging learning experiences. Teachers with knowledge of such software can tailor their lesson plans to incorporate dynamic multimedia content, simulations, and gamified elements, thereby catering to varied learning styles and enhancing student engagement. Besides this, understanding the advantages that ICT brought in the traditional educational system will helps in increasing the demand for ICTs. Teachers equipped with the know-how of ICT tools can deliver dynamic presentations, annotate content in real-time, and create an immersive learning environment. Multimedia integration into teaching not only captivates students' attention but also facilitates a deeper understanding of complex concepts. As the digital landscape expands, so does the importance of safeguarding sensitive information. Teachers knowledgeable about data security and privacy protocols ensure the ethical and responsible use of technology in the classroom. Adherence to policies related to data protection becomes crucial in maintaining the trust and confidence of students, parents, and educational institutions.

Hence, we can say that the knowledge of teachers about various aspects of ICT tools and devices is not merely a professional enhancement but a transformative force shaping the future of education. Empowered with digital proficiency, educators become catalysts for innovation, fostering an environment where technology becomes an enabler of enriched and equitable learning experiences.

Objectives
The study was framed to assess the knowledge of teachers of under-graduate program regarding various aspects of Information & Communication Technology tools & devices.

II. Research Methodology
- The locale of the study was Patna Town. For the purpose of this study, 300 teachers from various colleges and institutions of Patna Town were selected by purposive sampling technique.
- Data for the study in the present research were collected by interview schedule.
- After the collection of data, analysis of data was shown through graph using percentage.

III. Results & Discussions
The present study was conducted to assess the knowledge of under-graduate teachers on different aspects of Information & Communication Technology Tools & devices. Knowledge regarding Information and Communication Technologies (ICT) Tools & Devices will directly affects its usage pattern in educational system. Almost every teacher have knowledge about the Information and communication tools and devices. This may be due to the fact that the past 3 years Covid-19 period has brought the teachers and students near the ICT tools and devices. The pandemic has forced the Education Sectors to shift dramatically to virtual and blended modes of teaching and learning using various Information and Communication Technology (ICT) tools and has radically accelerated the pace and urgency of various ongoing technology-driven educational initiatives. Students and teachers are now relying on various online platforms to adopt new pedagogical methods to learn and teach. This may be the reason behind that most of our respondents have knowledge about most of the ICT tools and devices.(Digal & Younu, 2022). Now the various aspects related with knowledge of Information and Communication Technologies (ICT) Tools & Devices have been studied in this research which are as follows:

I.   Knowledge about advantages of ICTs Tools and Devices
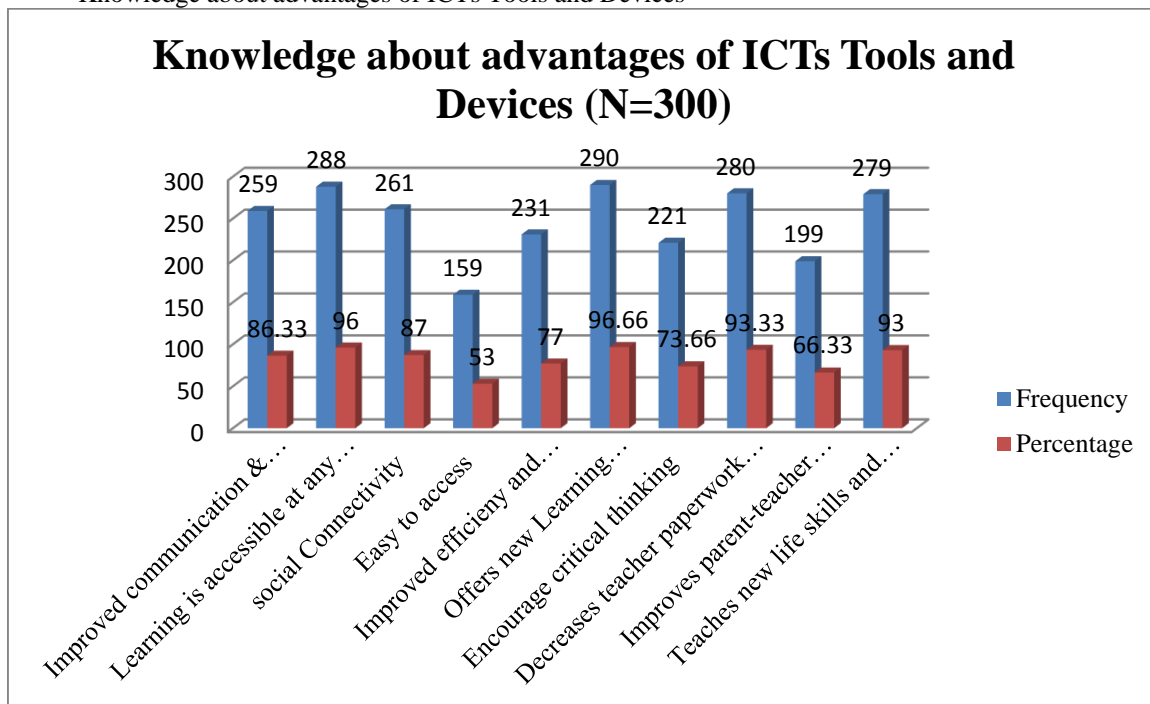

Figure.1. Knowledge about advantages of ICTs Tools and Devices among teachers of Under-Graduate Program

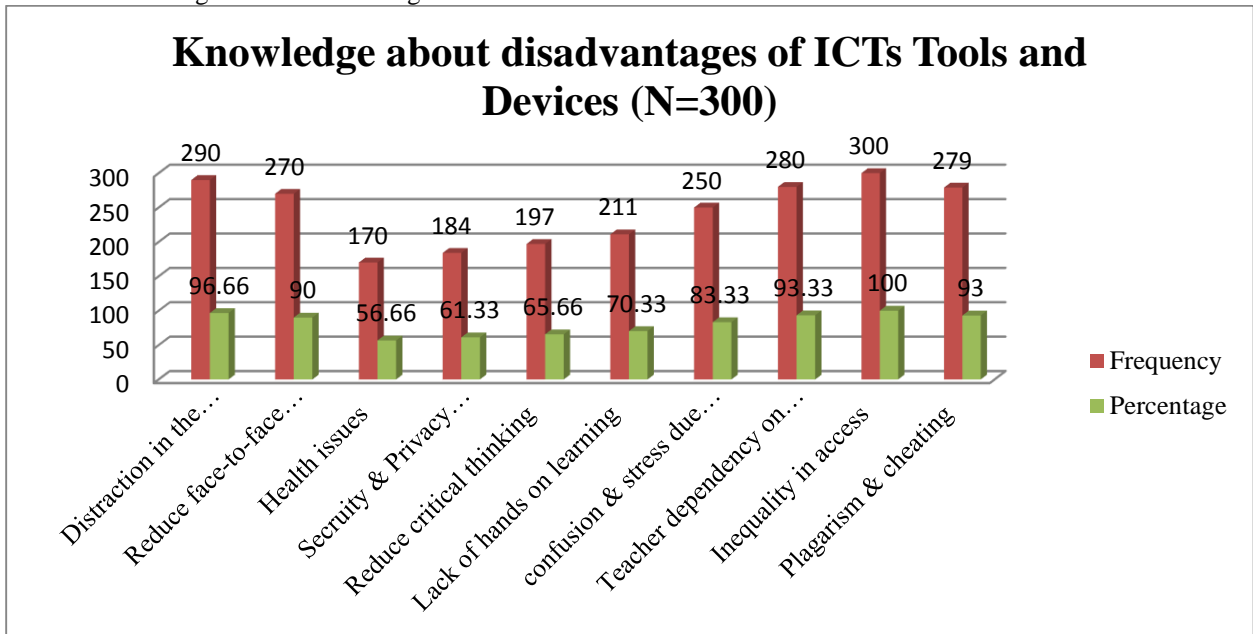II.   Knowledge about disadvantages of ICTs Tools and Devices

Figure.2. Knowledge about disadvantages of ICTs Tools and Devices among teachers of Under-Graduate Program

III.   Knowledge about role of ICTs Tools and Devices in higher institutions
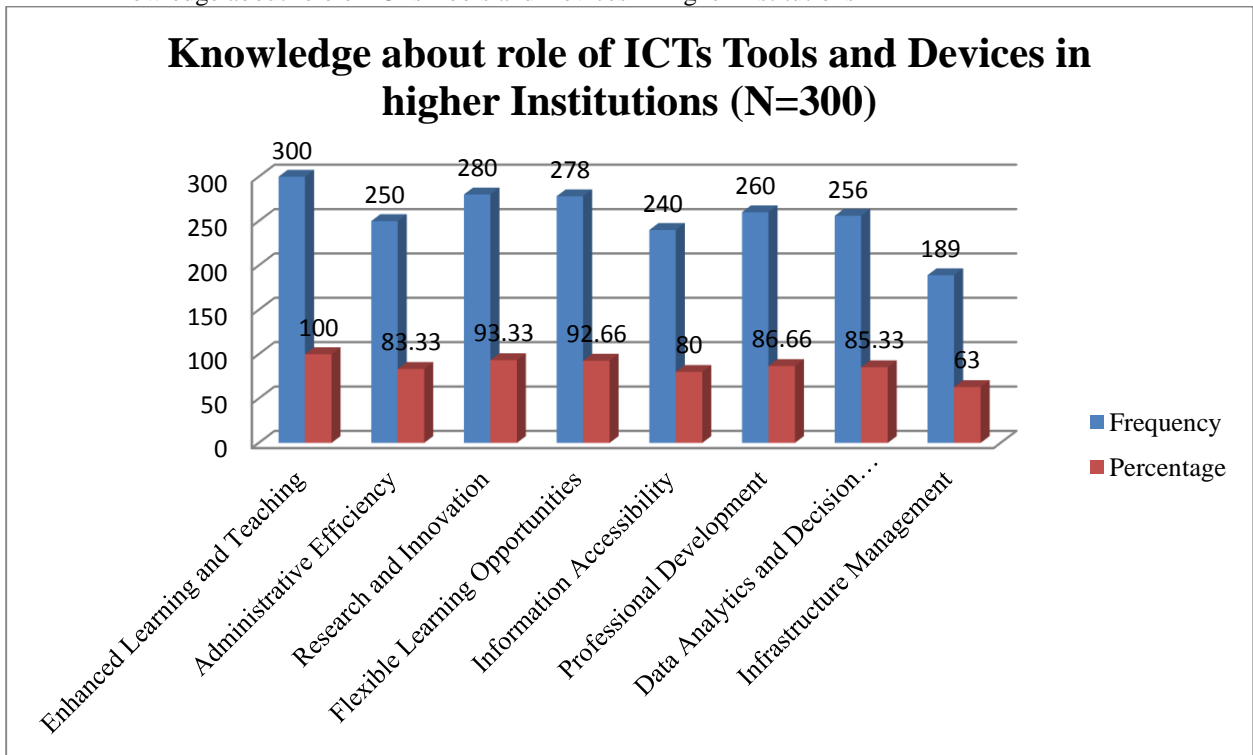

Figure.3. Knowledge about role of ICTs Tools and Devices in Higher Institutions

IV.   Knowledge about limitations of ICT tools and devices in higher institution
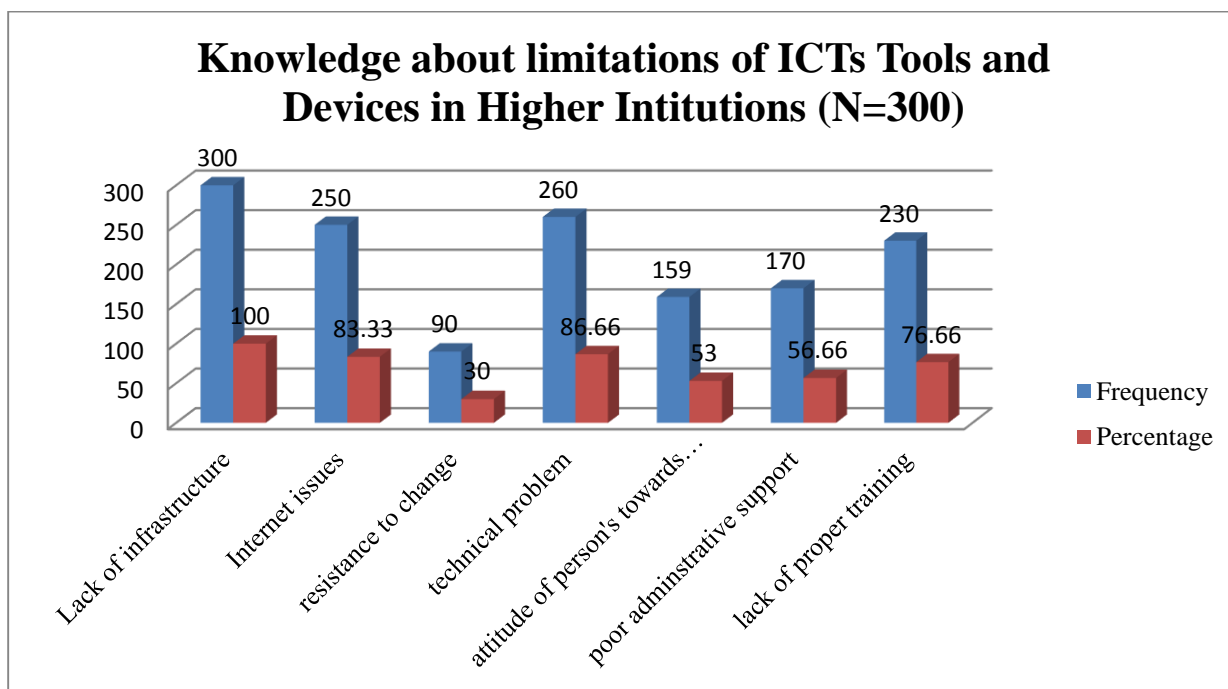

Figure.4. Knowledge about limitations of ICTs Tools and Devices

Above figures showed that Information and communication technologies brings many advantages to the teachers. From figure.1. It was found that 96.66 percent teachers said that ICT offers new learning techniques, 96 percent supported that it makes learning accessible at any time, 93.33 percent agreed that it reduces paper work, 93 percent reported that it teaches new life skills and 86.33 said that it increases communication and connection. Wang & Dostal (2016) study supported this fact and reported that ICT Tools not only enable ubiquitous learning by ironing out time and place restrict, but also helps to improve the effectiveness and efficiency of the outcomes of education.

Figure.2. stated that 100 percent teachers found inequality in its access, 96.66 percent found distraction in the classroom, 93.33 percent said it make teachers dependent on internet, 93 percent reported about plagiarism and cheating and 90 percent said it reduces face-to-face interaction.

Figure.3. stated that ICT plays a prominent role in Higher institutions. 100 percent teachers found that it enhanced learning, 96.66 percent said it is useful for professional development, 93.33 percent found it useful in research and innovation and 92.66 percent said that it provides flexible learning that in turns benefited teachers and students.

Figure.4. stated that ICT have some limitations in Higher education. 100 percent teachers reported about lack of infrastructure according to the ratio of teachers and students, 86.66 reported about technical problem that they encountered occasionally and 83.33 percent reported about the speed of internet. Habibu et.al., (2022) study also supported this fact that major barrier in using ICT were lack of genuine software, inadequate numbers of computers in classroom etc.

V.   Conclusions

The teachers of under-graduate program of various colleges and institutions of Patna Town were having knowledge about various aspects of information & Communication Technology (ICT) Tools & devices. Among the various advantages, maximum teachers reported ICT offers new learning technique and make learning accessible at any time as main advantage of ICTs; inequality in access was the main disadvantage of ICT. Enhanced learning and helps in research & innovations were the main role that ICT plays in higher institutions. Lack of infrastructure was reported as the main limitation of ICT uses in higher institutions.

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