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## Changing perspectives of GenZ students, towards education

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### Abstract

Ok, recent education system is generally following a lot of trends such as personalized learnings, learning analytics, adaptive learning, programmed learning, mooch platforms initiated learning, flipped classrooms, using smart boards, multimedia integration as well as using several visual aids within the classroom. Those all the things could be used for the betterment of teaching-learning transaction in the classroom eco-system. Modern researchers are trying their best for the adaptation and up-gradation of each and every technology for a better future. Better kind of ed-tech integration in classroom scenario can make the classroom more interactive -more engaging and can be beneficial for a smooth teaching-learning transactional procedure.

**Keywords:** Collaborative, face to face, blended learning, flexible, gamification, interactive, flipped classrooms, adaptive technologies

### Introduction

In earlier days only lecture method was prioritized while teaching -learning in most of the cases. Then decades passed learning started becoming more learner centered-more psychology based-learners need ability as well as interest based, so several innovative learning techniques were discovered based upon that such as Modern education systems can incorporate various techniques to enhance learning experiences: Personalized Learning, Project-Based Learning (PBL), Flipped Classroom Gamification, Collaborative Learning Blended Learning, Multimodal Learning: Culturally Responsive Teaching, Global Citizenship Education: By implementing these techniques, modern education systems can better meet the needs of diverse learners and prepare them for success in the 21st-century workforce and society.

### Content

In modern education systems, a variety of techniques can be implemented in Information and Communication Technology (ICT) plays a crucial role in revolutionizing education in several ways:

- 1. Enhanced Access to Information:** ICT provides students and teachers access to a vast amount of information through the internet, online libraries, and educational databases. This allows for a more comprehensive and diverse learning experience.
- 2. Engaging and Interactive Learning:** ICT tools such as educational apps, simulations, and multimedia presentations make learning more interactive and engaging. This helps to cater to different learning styles and improve knowledge retention.
- 3. Personalized Learning:** ICT enables personalized learning experiences by adapting to individual student needs and paces. Students can access learning materials and assessments tailored to their specific levels and interests.
- 4. Collaboration and Communication:** ICT facilitates collaboration among students and communication between students and teachers through online platforms, forums, and virtual classrooms. This encourages teamwork and active participation in the learning process.

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**5. Skill Development:** ICT equips students with essential 21st-century skills such as digital literacy, critical thinking, problem-solving, and creativity. These skills are crucial for success in the modern workforce.

**6. Efficient Administrative Tasks:** ICT streamlines administrative tasks such as attendance tracking, grading, and record-keeping, allowing teachers to focus more on instructional activities.

**7. Professional Development for Teachers:** ICT provides teachers with opportunities for continuous professional development through online courses, webinars, and workshops. This helps them stay updated with the latest educational trends and technologies.

**8. Global Learning Opportunities:** ICT connects students and teachers with peers and experts from around the world, fostering a global perspective and cross-cultural understanding.

**9. Special Needs Education:** ICT offers assistive technologies and adaptive learning tools to support students with special needs, enabling them to participate fully in the educational process.

**10. Distance Learning:** ICT enables distance learning, making education accessible to students in remote areas or those with limited mobility.

However, it is important to note that the effective integration of ICT in education requires proper infrastructure, training, and support for both students and teachers. Additionally, addressing concerns related to digital divide and ensuring equitable access to technology are crucial for maximizing the benefits of ICT in education.



**Fig 1:** Show benefits of ICT in education

The advantages of ICT (Information and Communication Technology) in education are numerous and far-reaching:

#### **For Students**

**Increased Engagement and Motivation:** Interactive learning materials, simulations, and educational games make learning fun and engaging, increasing student motivation and participation.

**Improved Learning Outcomes:** ICT tools provide access to diverse resources, personalized learning experiences, and

immediate feedback, leading to better understanding and retention of information.

**Enhanced Collaboration and Communication:** Online platforms and tools facilitate collaboration among students, enabling them to work together on projects, share ideas, and learn from each other.

**Development of 21<sup>st</sup> Century Skills:** ICT equips students with essential skills like digital literacy, critical thinking, problem-solving, creativity, and communication, preparing them for the modern workforce.

**Increased Accessibility and Flexibility:** Online learning materials and platforms offer flexibility in terms of time and place, making education accessible to students in remote areas or with different learning needs.

#### **For Teachers**

**Improved Teaching Efficiency:** ICT tools automate administrative tasks like grading, attendance tracking, and record keeping, freeing up teachers' time for more focused instruction.

**Access to Vast Resources:** Teachers can access a wealth of online resources, including lesson plans, educational videos, and interactive simulations, to enrich their teaching.

**Enhanced Professional Development:** Online courses, webinars, and workshops offer convenient and accessible opportunities for teachers to enhance their skills and knowledge.

**Better Communication and Collaboration:** ICT tools facilitate communication with students and parents, enabling better feedback, progress tracking, and collaboration on learning goals.

**Personalized Instruction:** ICT allows teachers to tailor instruction to individual student needs, providing targeted support and feedback to maximize learning outcomes.

#### **For the Education System**

**Cost-Effectiveness:** ICT can reduce costs associated with textbooks, printing materials, and physical infrastructure, making education more affordable and accessible.

**Innovation and Adaptability:** ICT enables the rapid adoption of new teaching methods, technologies, and educational approaches, keeping education relevant and responsive to changing needs.

**Global Reach:** ICT connects students and teachers with peers and experts around the world, fostering global collaboration, cultural exchange, and a broader perspective on learning.

#### **Data-Driven Decision Making**

ICT tools can collect and analyze data on student performance, enabling educators and policymakers to make informed decisions about curriculum, instruction, and resource allocation. Overall, ICT has the potential to transform education by making it more engaging, effective, accessible, and relevant to the needs of the 21<sup>st</sup> century.



**Fig 2:** Show numerous benefits in education

While ICT offers numerous benefits in education, it also comes with certain disadvantages that need to be acknowledged and addressed:

**1. Cost and Infrastructure:** The initial investment in ICT infrastructure, including hardware, software, and internet connectivity, can be expensive, particularly for underfunded schools and institutions. This can exacerbate the digital divide between rich and poor schools.

**2. Maintenance:** Technical problems such as software glitches, hardware malfunctions, and internet outages can disrupt the learning process, leading to frustration and lost instructional time.

**3. Teacher Training and Support:** Integrating ICT effectively requires adequate training and ongoing support for teachers. Lack of training can result in teachers feeling overwhelmed and underprepared to use ICT tools effectively in their classrooms.

**4. Distractions and Misuse:** The internet and digital devices can be a source of distraction for students, tempting them to engage in non-educational activities like social media or gaming. This can negatively impact their focus and learning outcomes.

**5. Health Concerns:** Excessive screen time can lead to eye strain, headaches, and other health problems for students and teachers. It can also contribute to a sedentary lifestyle, which has negative health implications.

**6. Cybersecurity and Privacy Risks:** The use of ICT in education raises concerns about cybersecurity threats such as hacking, data breaches, and cyberbullying. Protecting student and staff data from unauthorized access is crucial.

**7. Over-Reliance on Technology:** An over-reliance on ICT can lead to a decrease in critical thinking and problem-solving skills. It's important to strike a balance between technology-assisted learning and traditional teaching methods that encourage independent thinking.

**8. Lack of Personal Interaction:** Excessive use of ICT can limit face-to-face interaction between students and teachers, potentially impacting the development of social skills and emotional intelligence.

**9. Equity and Access Issues:** Not all students have equal access to technology and the internet at home, which can exacerbate existing educational inequalities. This digital divide can hinder the learning opportunities of disadvantaged students.

**10. Maintenance and Upgrades:** ICT systems require regular maintenance and upgrades to remain functional and secure. This can be an ongoing expense for educational institutions.

Addressing these disadvantages requires a multi-faceted approach, including investing in infrastructure, providing adequate teacher training, establishing clear usage policies, promoting digital literacy, and ensuring equitable access to technology for all students.



**Fig 3:** Show ICT in education include

Recent research trends based on ICT (Information and Communication Technology) in education include:

**1. Artificial Intelligence (AI) in Personalized Learning:** Researchers are exploring how AI can be used to create adaptive learning platforms that tailor educational content and experiences to individual student needs and abilities. This involves developing intelligent tutoring systems, recommendation engines, and automated feedback mechanisms.

**2. Learning Analytics and Educational Data Mining:** There is growing interest in using data analytics to gain insights into student learning patterns, behaviors, and performance. This data can inform instructional strategies, identify at-risk students, and personalize learning interventions.

**3. Virtual and Augmented Reality (VR/AR) in Education:** VR and AR technologies are being investigated for their potential to create immersive and interactive learning environments. These technologies can transport students to different historical periods, simulate scientific experiments, and provide hands-on training experiences.

**4. Mobile Learning (mLearning):** The ubiquity of mobile devices like smartphones and tablets has led to a surge in research on mobile learning. Studies are exploring how mobile apps, games, and content can be used to enhance learning both inside and outside the classroom.

**5. Gamification and Game-Based Learning:** Researchers are examining how game elements like points, badges, and leaderboards can be incorporated into educational activities to increase student engagement and motivation. Game-based learning approaches are also being developed to teach complex concepts and skills in a fun and interactive way.

**6. Social Media in Education:** The use of social media platforms like Twitter, Facebook, and online forums for educational purposes is being studied. Researchers are investigating how social media can facilitate collaboration, communication, and knowledge sharing among students and teachers.

**7. Blockchain technology:** Blockchain technology is being explored for its potential to create secure and tamper-proof records of educational credentials, transcripts, and certificates. This can enhance the credibility and portability of educational qualifications.

**8. Accessibility and Inclusion in ICT:** Research is focusing on developing ICT tools and resources that are accessible to students with disabilities. This includes creating assistive technologies, adapting learning materials for different needs, and promoting inclusive learning environments.

**9. Ethical and Social Implications of ICT in Education:** As ICT becomes more pervasive in education, researchers are examining the ethical and social implications of these technologies. This includes issues like data privacy, algorithmic bias, the digital divide, and the impact of technology on student well-being.



**Fig 4:** Show visual, reading & writing, auditory student well-being

These are just a few of the recent research trends in ICT in education. The field is constantly evolving, and new technologies and approaches are emerging all the time. As researchers continue to explore the potential of ICT in education, we can expect to see even more innovative and effective ways of using technology to enhance learning and teaching.

ICT (Information and Communication Technology) holds immense potential to shape the future in various domains:

## 1. Education

**Personalized Learning:** AI-powered platforms will adapt to individual learning styles, pacing, and interests, maximizing learning outcomes.

**Immersive Experiences:** VR/AR will revolutionize how we learn, enabling virtual field trips, simulations, and hands-on training in safe environments.

**Global Classrooms:** Online platforms will connect learners worldwide, fostering cross-cultural understanding and collaboration.

**Lifelong Learning:** Micro-credentials and online courses will provide accessible and flexible upskilling opportunities.

## 2. Workforce

- **Remote Work:** Cloud computing and collaboration tools will enable seamless remote work, increasing flexibility and productivity.
- **Automation and AI:** Repetitive tasks will be automated, freeing humans for more creative and strategic roles.
- **Data-Driven Decision Making:** AI-powered analytics will inform decision-making across industries, improving efficiency and innovation.
- **New Job Opportunities:** ICT will create demand for new skills in areas like cybersecurity, data science, AI development, and digital marketing.

## 3. Healthcare

**Telemedicine:** Virtual consultations and remote monitoring will expand access to healthcare, especially in rural areas.

**AI-Assisted Diagnosis:** Machine learning algorithms will analyze medical data to assist in early disease detection and treatment recommendations.

**Personalized Medicine:** Genetic data and AI will enable tailored treatment plans for individual patients.

**Wearable Health Tech:** Devices will track vital signs and activity, promoting preventive care and early intervention.

## 4. Environment

**Smart Cities:** ICT will optimize resource management, energy use, and transportation, creating more sustainable urban environments.

**Climate Modeling:** AI will help analyze climate data, predict extreme weather events, and inform mitigation strategies.

**Precision Agriculture:** Sensors and data analytics will optimize crop yields, reduce water waste, and minimize the environmental impact of farming.

## 5. Impact

**Digital Inclusion:** Initiatives to bridge the digital divide will ensure equitable access to technology and its benefits.

**Civic Engagement:** Online platforms will facilitate civic participation, enabling citizens to voice opinions, access information, and hold governments accountable.

**Social Innovation:** ICT will empower individuals and communities to address social challenges through innovative solutions.

## 6. Governance

**E-Governance:** Online services will streamline administrative processes, making government more efficient and transparent.

**Data-Driven Policymaking:** ICT will provide policymakers with real-time data to inform evidence-based decisions.

**Cybersecurity:** Strong cybersecurity measures will be crucial to protect critical infrastructure and sensitive information.

In conclusion, ICT has the potential to revolutionize every aspect of our lives, from education and work to healthcare and the environment. By harnessing the power of ICT, we can create a more equitable, sustainable, and prosperous future for all.

## Conclusion

The evolution of teaching methods from traditional lectures to learner-centered approaches has led to the discovery of various innovative learning techniques. Modern education systems now emphasize personalized, psychology-based methods that cater to the individual needs, abilities, and interests of learners. Techniques such as Project-Based Learning, Flipped Classroom, Gamification, and Collaborative Learning are increasingly utilized, supported by Information and Communication Technology (ICT). ICT plays a crucial role in enhancing access to information, fostering interactive learning, and facilitating personalized education. By integrating these strategies and tools, education systems can better prepare students for the challenges of the 21st century, ensuring they are equipped with essential skills for success in both workforce and society.

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