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Study of Usage of Technology in Education- Issues and Challenges in Post Covid India

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Abstract
Information and communication technologies (ICT) play a very significant role in the education sector especially in the process of empowering technology into the educational activities and is considered as one of the strongest ways to enhance student's knowledge in the current scenario. Post covid ICT has influenced every discipline of the society, including education.

ICT plays a significant role in equalizing opportunities for marginalized groups and communities. But the paradox is for those groups who are still not able to cross the technology divide, ICT is yet another means to further marginalize them. Education plays a major role in resolving this problem. Thus, unless ICT becomes part of both the delivery and content of the education, the disadvantage will deepen and development will suffer.

Keywords: Information and communication technologies, flipped classroom, hybrid learning, online learning, offline learning.

Introduction
Information and communication technologies (ICT) play a very important role in the education sector especially in the process of empowering technology into the educational activities and is considered as one of the strongest ways to increase student's knowledge in the current scenario. Post covid ICT has influenced every discipline of the society, including education.

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E- Learning Is Multi - Dimensional and an Innovative Process
The E- learning is a multi - dimensional and an innovative process and it incorporates the following–
➢ It is an innovative teaching and learning procedure.
➢ Successfully introduces abstract concepts
➢ Facilitates industrial/technical inputs through videos
➢ Delivers real time learning
➢ Improves productivity in class
➢ Assists formative assessments
➢ A great provider of teaching aid resources
➢ Aid to hands on advanced technological tools
➢ Increases teacher effectiveness
➢ Offers face to face interaction laced with computer aided learning
➢ In the process targets multiple intelligence

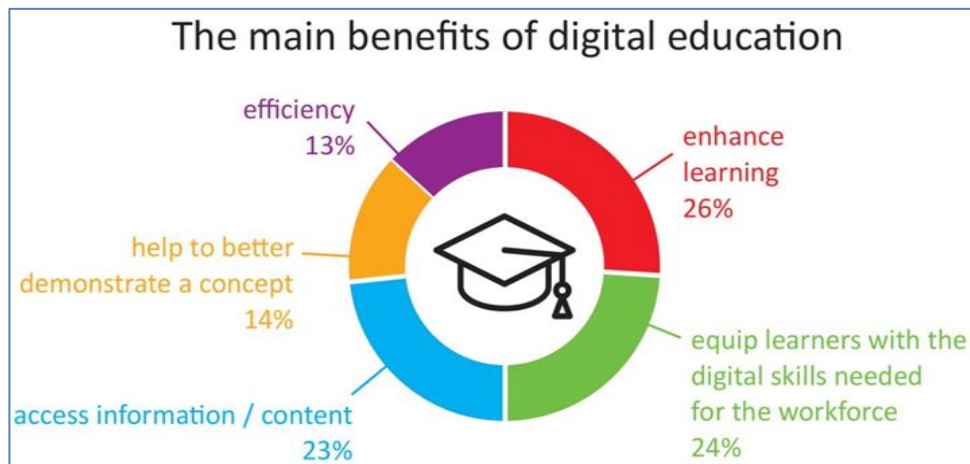**Correspondence**:
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Advantages of Using Technology in Education.

Source: aitsl.edu.au

Major Issues and Challenges in Implementation of ICT In Schools

Lack of professional development meant for teachers
The lack of adequate technological training of teachers is key among all the challenges facing secondary education. The teachers are required to have appropriate knowledge to integrate new technologies into their classrooms yet they are not prepared or unable to understand new technologies. Many times, when schools mandate use of a specific technology, teachers are left without the tools (and often skills) to effectively integrate the new competencies into their teaching methodologies. The results are that the new investments in technology are either under -utilized, not used at all, or used in a way that mimics an old process rather than innovating on some new processes that may be more engaging for students.

Resistance towards adopting new technological change
Resistance to learning new technology comes in many forms, but one of the key resistance challenges identified is "comfort with the status quo." According to various studies and researches, the teachers and school administrators often see a switchover to technological mode of education outside the scope of their job profile.

MOOCs and other novel courses for teaching
New methods of teaching and learning are providing unprecedented competition to traditional modes of schooling. To be precise, MOOC (massive open online course) — probably the latest topic in education right now — has been identified as being "at the forefront" of discussions regarding new modes of delivering education.

Bringing informal learning into mainstream
The rigid lecture-and-test models of learning are failing to challenge students to experiment and engage in informal learning. The non-traditional classroom models, such as flipped classrooms, which allow for blending of both formal and informal learning are providing ample opportunities for the students.

Failures in implementation of personalized learning
There is a breach between the visualization of delivering personalized, differentiated instruction and the technologies available to make this possible. So, while the teachers appear to see the need for personalized learning, they are not being given the tools they need to achieve it, or adequate tools simply don't exist.

Non-availability of effective formative assessments using technology
Assessment is one of an important driver for educational practices and change. Over the last few years, we have seen a welcome rise in the use of formative assessment in educational practices. Nevertheless, there is still an assessment gap, as to how alterations in curricula and new skill demands are implemented in education; schools do not always make the necessary adjustments in assessment practices as a result of these changes. Simple uses of digital media tools, like webcams that allows continuous peer observation, offer considerable potential in giving teachers timely feedback that they can use.

Other Challenges in Implementation of ICT in Education

Dearth of trained teachers to teach ICT in schools
The demand for ICT learning and teaching has been tremendous and the number of teachers who are trained to teach ICT cannot meet the required demand.

Shortage of computers
Computers are still a costly item and despite strong efforts by the government interventions, NGOs, corporate organizations and individuals to donate computers to as many schools as possible. There still remains a big percentage of schools unable to purchase computers for their students.

Poor supply of electricity
Many schools in rural areas have irregular electricity supply. Schools that fall under such areas are left handicapped and may not be able to successfully offer computer studies.

Damaged computers
While a good number of schools have benefited from donated computers, they are still not adequately equipped with the same on maintenance and repair. Therefore, it's very common to see school's computer lab full of broken-down computers, some repairable and some not.

Outdated computers
The obsolete computers lower the morale of both the teachers and the students. Technology keeps on evolving and advancing at a high rate, new programs are made and lack of proper tech facilities act as a big hindrance for the education system.

Lack / slow internet connectivity
Many schools especially in the rural areas are still not able

to connect to the World Wide Web, due to the high costs involved in the connectivity.

Moral degradation of society

Addiction to number of social networking sites, cyber bullying and other anti-social behaviours is an emerging problem of worry.

Key Instructional Strategies for Students

The following instructional strategies can be used to enhance students' learning concentration and engagement in order to achieve a smooth transition to online/hybrid learning.

- Split teaching content into smaller units to augment students focus

Often school students show weak persistence in online learning, which seriously restricts their learning effectiveness (Li, Wu, Yao, & Zhu, 2013). In order to ensure student's concentration in online study, faculty should reasonably break down the content into different topics and adopt a modular teaching method. Each content of approximately 20-25 minutes duration.

- Stress the use of "voice" in teaching

In the traditional in-class teaching, body language, facial expressions, and teachers' voice are very important teaching tools. However, once a course is switched to online teaching mode, both body language and facial expressions are under restrictions as it is difficult to use these tools through screens. Only "voice" is in functional mode. Therefore, in online teaching, the concerned faculty should appropriately slow down their speech to allow each student to capture key knowledge points.

- Collaborate with teaching support staffs and have access for their online support

The technical requirements of online teaching are many, especially for the teachers used to traditional in-class teaching. In view of the fact that most of the teachers in our secondary schools are insufficiently trained or supported to operate online education platforms, the support from teaching assistants is particularly important. The teachers should fully communicate and plan with the teaching assistants before the class to make sure that they understand the objectives, knowledge framework, and teaching activities of each class. In this way, the teaching assistant can provide an effective support in online teaching.

Additionally, the teaching supporters can be very helpful in providing discussions and answer questions for academically underprepared students by using email, WeChat, and other social platforms after class.

- Effectively organize online learning and offline self-learning segments

Insufficient pre-class study preparation, limited participation of the students in class discussions, and weak discussion depth are common phenomena in traditional in-class teaching. Such issues should not be overlooked in online teaching. In order to avoid such problems in online teaching, the teachers should adopt the following two phases of teaching:

i) the offline self-learning phase and
ii) the online teaching phase.

In the offline self-learning phase, students are required to read the course-specific literature beforehand and come prepared with the key materials before the class. The teacher should provide necessary feedback to the students and try to ascertain their cognitive levels. This way, the teacher is able to make adjustments in teaching content before class. In the online teaching phase, teacher should use a discussion section for students to exchange their understanding based on their self-reading. Hence, the students will not learn vague, fragmented, and shallow knowledge. Instead, they will experience deep learning during the discussion.

- Have ready alternative back up plans

Since many institutions have switched to online mode of education, the computer servers may not be able to host such a large number of new users. There are chances that online education platform may often shut down because of overload. In order to timely solve all kinds of unexpected issues, the teachers need to prepare Plan B or even Plan C before classes start and inform students in advance.

Technological skill development in Students and Educators

Developing technological skills in teachers and students is an urgent demand of the present times. The positive impact of ICT can be felt only after the reorientation of the education system at the secondary level.
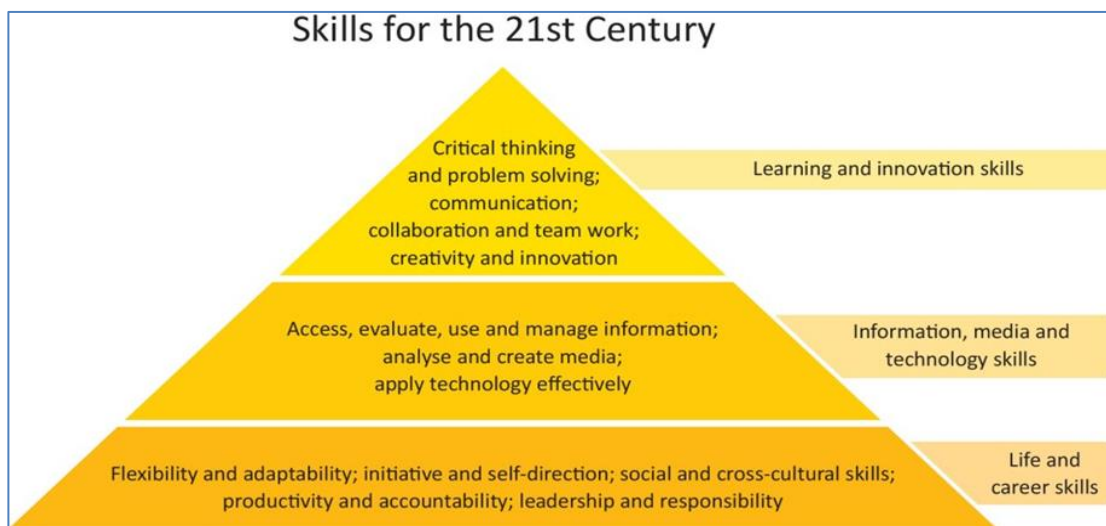
Source: nicePNG

ICT and Role of Rashtriya Madhyamik Shiksha Abhiyan (RMSA).

The Information and Communication Technology (ICT) in schools have been incorporated in the Rashtriya Madhyamik Shiksha Abhiyan (RMSA). Now the ICT in Schools are a component of the RMSA. The Information and Communication Technology (ICT) in Schools was started in December, 2004 and revised in 2010 to deliver prospects to secondary stage students to primarily build their capacity on ICT skills and also make them learn through computer aided learning processes. This Scheme is a major facilitator to bridge the digital divide amongst the students of various socio economic and other geographical barriers. The Scheme provides backing to States/UTs to establish computer labs on viable basis.

Mechanisms of RMSA

The scheme has essentially four components: -
- The first component is the partnership with State Government and Union Territories administrations for providing computer aided education to Secondary and Higher Secondary Government and Government aided schools.
- The second component is the establishment of smart schools, which shall be technology demonstrators.
- Third is the teacher related interventions, such as provision for engagement of an exclusive teacher, capacity enhancement of all teachers in ICT and a scheme for national ICT award as a means of motivation.
- The fourth relates to the development of e-content, mainly through Central Institute of Education Technologies (CIET), six State Institutes of Education Technologies (SIETs) and 5 Regional Institutes of Education (RIEs), as also through outsourcing.

Highlights of revised RMSA scheme -
- The non-recurring expenditure for school has been revised from rupees 6.7 lakh to rupees 6.4 lakh whereas annual recurring expenditure has been revised from 1.34 lakh to rupees 2.70 lakh. The recurring cost will be provided for a period of 5 years from the year of sanction.
- The aim and objective of the Scheme is to cover all Government and government aided secondary and higher secondary schools by giving priority for early coverage of schools in educationally backward areas and in regions having concentration of SC/ST/minority/weaker section.
- Under the reviewed scheme, there is a provision of a suitably qualified full time computer teacher in each secondary and higher secondary school. In higher secondary schools having computer related subjects as elective, there would be need of a teacher who is post graduate in computers.
- There are opportunities for in-service (induction and refresher) training for all teachers in secondary and higher secondary schools to enable them to impart ICT enabled teaching.
- 150 smart schools would be sent up by State Government and UTs at the district level using a grant of Rupees 25 lakh for a school and a recurring grant of Rupees 2.5 lakh per year. This would enable provision of at least 40 computers in each such school.
- There is a provision to build up SIETs to contribute to e-content development.
- Management, monitoring and evaluation will be strengthened.
- Conjunction with the prevailing programme would be vital especially in teacher training and ensuring reliable power supply and internet connectivity.
- The scheme encompasses National Award for teachers using ICT in schools in the teaching learning process.
- The division outline will be 75:25 between the Centre and the State except for the north eastern States including Sikkim where the ratio would be 90:10.

Coverage

The scheme presently covers both Government and Government aided Secondary and Higher Secondary Schools. Financial support is made available for procurement of computers and peripherals, educational software, training of teachers, development of e-contents, Internet connectivity & set up of smart schools. Approximately, more than one lakh government and government aided secondary and higher secondary schools have been approved for coverage under ICT in Schools Scheme.

Financial Assistance

Financial aid is specified to States, CIET and SIETs on the basis of the sanctions rendered by Project Approval Board (PAB) chaired by Secretary (School Education and Literacy). The budget of the project is jointly shared between Centre and States in the ratio of 75:25 except for the NER states including Sikkim where it is 90:10.

Smart School

Under the existing Information Communication Technology in School Scheme as against the goal of setting up of 150 more such schools, this Ministry has approved for coverage of 63 Smart School so far. The Smart Schools are being established in the districts by adaptation of one of the existing State Government schools to serve as a role model and Technology Demonstrator among the neighbourhood schools.

National Award for Teachers Using ICT in Education

Under the scheme of ICT in Schools, to endorse computer enabled learning and usage of ICT in teaching in Government and Government aided Secondary and Higher Secondary Schools has provision for establishing the National Award to motivate the Teachers and Teacher Educators for innovative use of ICT in teaching-learning.

Conclusion

Teachers can make use of the data efficiently to monitor and guide students. Augmented reality and virtual reality can make learning exciting, with rich experiences and opening up to endless possibilities. Highly engaging classrooms will definitely lead to better results. These can easily transform the traditional methods of learning, breaking down the walls of classrooms and making students to think out-of-the box and pilot new innovations. ICT facilitates in bridging the differences amongst the students, parents and teachers leading to an effective interaction and a transparency between the three. An equal significance should be given to encourage the culture of learning in schools and to support schools in sharing experience and information with others.

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