HETEROTOPIA

AN ISOC INDIA MUMBAI PUBLICATION

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Internet Society
India Mumbai

AN ICANN AT-LARGE STRUCTURE

FROM THE EDITOR'S DESK

NANDITA KOSHAL

"If we teach today as we taught yesterday, we rob our children of tomorrow." The profound quote by American Philosopher and education reformer John Dewey highlights the necessity for the education sector to meet the needs and demands of changing times. Covid-19 Pandemic reiterated that the tools, methodologies, and approaches that were earlier sacrosanct are no longer sufficient. Education can no longer be viewed independently of technology. Even the most technophobic educationists, academics, and experts had to unlearn their bias against technology and learn education technologies and tools during the pandemic, thus giving validation to Education Technology or 'EdTech'.

As a chapter that has always worked on the intersection of education, technology and society, ISOC India Mumbai has always celebrated the transformational aspect of the Internet and technology in different sections of society by improving their learning aspect. Be it teaching underprivileged kids how to leverage Wikipedia for their knowledge building, to helping old veterans learn useful apps like google maps to navigate their ways, to leading a discourse on the role of the Internet and social media in higher education, ISOC Mumbai has always endeavoured to highlight how technology used for education can add value in lives of different sections of society.

Our second edition of Heterotopia is a culmination of our passion for the Internet and education and the technological transformation in the education sector. It, therefore, gives me immense pleasure to bring the next edition under Heterotopia on the theme of Education Technology or 'EdTech'. For our new readers, Heterotopia is our attempt to create a shared space that celebrates intellectual differences. We took inspiration from 20th-century philosopher Michel Foucault and uniquely envision Heterotopia as a space that invites 'other or different perspectives' to contribute constructively to the growth of a certain idea, thought and innovation.

Broadly speaking, EdTech or education technology is the use of technological tools in the educational ecosystem to make learning more engaging and interactive, redefine the experience and improve student outcomes. Interactive platforms, AI tools such as chatbots, online content delivery, use of whiteboards, and video conferencing platforms like zoom, are some key examples of education technologies. It is important to note that in everyday use 'EdTechs' are also referred to companies that work in the area of education technology. However, in our publication, we have kept our discourse broadly focused on the integration of education and technology.

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The edition of Heterotopia presents a mélange of perspectives, information, celebration and speculation on the role of technology in shaping the future of education. Through our articles, we questioned the coming of age of online learning and understood the benefits and challenges of hybrid learning. We explored new forms of learning like nano learning and how they can provide byte-sized learning experiences in a short duration. We proposed how gamification can revolutionize the education experience in future and celebrated the potential of assistive technology in supporting the learning needs of differently abled.

We are also mindful of the perils of prolonged online exposure for children. To discuss how the safety and security of children can be assured in cyberspace, the chapter organized a Women in Technology Leadership Series webinar on the theme "Protecting Children Online" on 30th April 2022. The key discussion points and insights of the deliberation are included in this edition in the form of a report.

We acknowledge that EdTech is a vast ocean, and we may have only been able to cover a few drops of the ocean. As educational technologies, tools, and methodologies continue to evolve, we hope to cover more topics on this theme in our future publications.

Lastly, this initiative could not have been possible without the contributions of some key individuals. I would like to thank Mr Prateek Pathak for providing crucial design and editorial insights and Ms Feroza Mody for her design support for this initiative. I sincerely hope you enjoy this edition and the insights shared by the writers. As always, we would love to hear your thoughts and feedback and are happy to connect with you.

Thanks & Regards
Nandita Koshal
Editor & President
Internet Society (ISOC) India Mumbai Chapter

IS IT COMING OF AGE FOR ONLINE HIGHER EDUCATION?

ANAMIKA SRIVASTAVA

Online education of any kind is the epitome of what the revolution in information and communication technology can do. What were imagined to be contributors at the margins of the educational landscape, EdTech companies like Coursera, Udemy, and Skillshare have witnessed an unprecedented increase in their enrollment by 2021. According to a report, Coursera registered 20 million new learners for its courses in 2021, 'equivalent to total growth in the three years pre-pandemic'.

Undoubtedly online courses and now full-fledged online degrees are big disrupters in the education sector. They are symptomatic of what technology can deliver, especially during times of crisis. They have addressed significant gaps in the industry, which were, until now, imagined as non-negotiated denominators in the field. On the supply side, doing away with the requirement of physical space to carry out higher education was distantly imagined. On the demand side, students accessing education from the convenience of their home context was unthinkable. Technology plays a pivotal role in online classes, thereby improving the ease of utilizing online learning tools like videos, audio, animations, virtual whiteboards, etc. Notwithstanding the availability of these tools in the offline classroom space, the convenience of employing them online cannot be overstated.

Informally, the Internet was always a place to learn. Today, more and more people rely on the Internet to know things, including what, how, and why dimensions of knowledge. The origins of self-directed learning are well captured in the phrase– 'Let me google that for you, a passive-aggressive way of saying–please do not bother others with inquiries that a search engine on the Internet can address. A plethora of content uploaded on the Internet facilitates people with knowledge and skills to carry out simple to more complex tasks in their lives.

Accelerated by the pandemic, formal online education has gained serious attention in the past few years. Yet, formal online education comes in various forms, sizes, and shapes. Argued to be instrumental in the democratization of education, the earlier avatar of formal online education, also known as massive open online courses (MOOCs), were primarily altruistic initiatives of the reputed global universities. Founded by the researchers at MIT and Harvard, edX collaborated with several partners, including Microsoft, Arizona State University, Georgia Institute of Technology, and University of California San Diego, to deliver low to no-fee courses and programs. This type of education was always imagined to be additive. The purpose was not to replace face-to-face education. MOOCs were pursued over and above the regular university credentials. Overall, MOOCs were never meant to substitute university education by design.

Coming to the dominant form of formal online education today, it is commercially promising and claims to substitute face-to-face education altogether. A triumphant moment in online education was when the universities, which were hitherto the most extensive critics of ed-tech companies, started embracing their services into their day-to-day activities. However, it is yet to be ascertained whether online education today is a mature space to gear the complexes of higher education.

The Embracement of technology into education needs to be based on social relations and requires a cautious approach. An increasing number of students are only modestly satisfied with the quality of online education, especially when lectures are asynchronously held. While it is likely that online education is provided with no or very few offline artifices, authentic online education needs to include human elements. Features of a sophisticated online course include the inclusion of live lectures, availability of one-to-one slots with the instructor (albeit online), periodic assessment and live feedback, opportunities for group learning and peer interaction, and the physical embodiment of the online course. The last point entails the existence of some corresponding physical office or space for the online education that one is pursuing.

Finally, the virtual space is not always the safest. As more and more universities embrace online technology and mechanisms to carry out their day-to-day activities, a serious consideration of the question of data privacy is warranted. There is already a growing discourse on the student's demand to protect their information, shared by their universities with government and private platforms.

Online education is here to stay. However, for several reasons, including pedagogical, social, and legal, the pertinence of offline dimensions of online education is increasingly realized. Checks and balances are necessary. While the pandemic has been a big spur, the world awaits the coming of age for online education.

Anamika Srivastava, PhD is currently teaching Development Economics to graduate students at Carleton University, Canada. She is Associate Professor at O.P. Jindal Global University, India

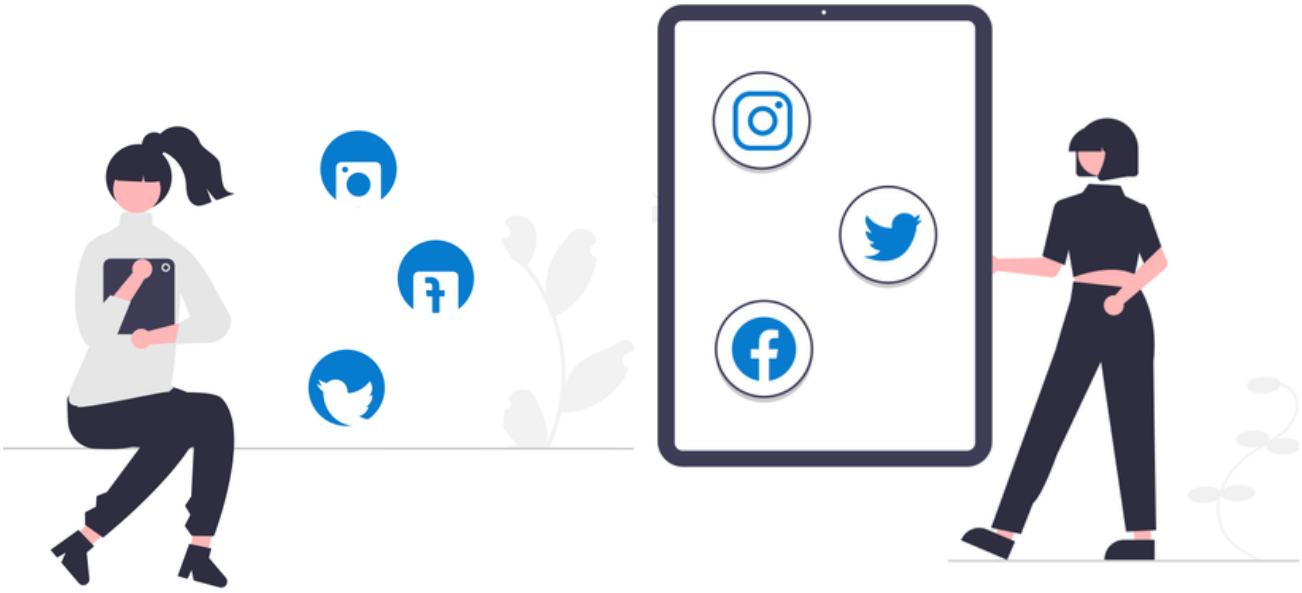
IMPACTFUL NANO LEARNING FOR A BETTER FUTURE

PRATEEK PATHAK

In today's hectic lifestyle, what is the best approach to upgrade your knowledge to improve your learning and career prospects?

Traditional learning mechanisms (i.e. pursuing a university degree or pursuing a semi-annual e-learning certificate course) may not be an ideal approach as it requires a significant investment of time, money and cognitive focus from the learner. In today's attention deficit world driven by social media and ruled by a scarcity mindset capitalizing on the app economy, adopting one size fits all will not work. The conventional education delivery mechanisms in traditional learning can be comparatively overwhelming, boilerplate, insipid and inefficacious for the learners. For working professionals, the opportunity cost of traditional learning mechanisms is high.

Interestingly, the advent of the Internet and online analytics have opened new frontiers for knowledge exchange, storage, delivery, measurement, and personalization. It is predicted that future learners will learn more from WhatsApp, Instagram, Tik Tok and Snapchat compared to traditional schools, scholarly publications and newspapers.
Accordingly, nano learning has evolved as an effective approach to learning in today's online world.



There are several definitions of nano-learning. However, all definitions concur that the nano learning approach refers to using personalization and analytics to design, distribute, and utilize tiny chunks of information for learning with a veritable learning outcome. In addition, an element of entertainment for the delightful delivery of nano-learning makes this experience more memorable.

Many organizations and knowledge curators use the nano-learning approach in the online world to help interested learners achieve their learning objectives. For example, the Institute of Physics in the UK launched the Limit Less Campaign to generate interest in marginalized communities about the role of Physics in changing the world. Tik Tokers played a critical role as creative influencers for the 'Physics is for everyone' campaign by performing simple and accessible experiments. Similarly, Ryan Laverty offers Arist as a text message learning platform allowing anyone to build a text message course and enabling educators/learning curators to meet learners over SMS and popular Internet messaging platforms like Whatsapp, WeChat etc. Irrespective of it being considered pejorative, WhatsApp University plays a critical and productive role in influencing the minds of the Indian populace.

How can tyro organizations and knowledge curators leverage nano-learning to provide an impactful, engaging, and meaningful byte-sized learning experience within a short duration (say, 180 seconds)? As an organization situated at the intersection of education, technology and public policy, the Internet Society (ISOC) can play a critical role in shaping the evolution of this learning approach.

At ISOC India Mumbai, we interacted with several educators and knowledge curators within our community to generate insights on improving the efficacy of nano-learning. Accordingly, our six key learnings are:

1. Thoughtful structuring of learning content and repetition of key learning messages are critical to improving the efficacy of nano-learning courses.

2. In-depth knowledge and rigour are required on part of curators to break down the knowledge and information into small snippets that can be used for nano learning. Determining learning objectives and breaking them down into learning outcomes to a nano level can be helpful in this regard.

3. Curators must understand and acknowledge the bias and scope of misinformation in the delivered knowledge. It is the sine qua non for nano learning courses that contain an element of non-physical sciences.

4. Effectively leverage Web 2.0 to build community knowledge. Thus, students should be allowed to influence and shape the nano-learning pedagogies via the design of innovative, real-time feedback mechanisms.

5. There is a need to find the right balance in quality and quantity for nano-learning content. This trade-off must be administered by not relying on mere social media followers/subscribers of a course but also gaining the credibility of traditional knowledge providers like universities, research institutions etc. University endorsement of nano learning courses can be a great starting point.

6. Nano learning can complement traditional learning initiatives. For example, utilize insights from nano-learning to refine MOOCs to make them more engaging and reduce student dropout.

Indeed, we advocate the implementation of effective nano-learning approaches over the Internet as they will play a significant role in achieving UN SDG Goal 4 i.e.to ensure inclusive and quality education and promote lifelong learning opportunities for all. It will ensure that Education and Internet continue to be forces of social good that facilitate upward social mobility and a better future for the online masses.

Prateek Pathak is the founding President of ISOC India Mumbai Chapter. He works in the Data Analytics, Transformation and Strategy Team of a Unilever Group company.

GAMIFYING THE LEARNING EXPERIENCE: TIME TO PLAY AND LEARN!

NANDITA KOSHAL

What is Gamification?

Gamification can broadly be defined as an application of game mechanics in non-game, real-life settings. Often combined with the behavioural economic theory of nudge to motivate individuals towards a desired behaviour, Gamification involves using game elements such as badges, rewards, point system, leaderboard, and feedback mechanism to incentivize one toward more participation and learning. While gamification differs from game-based learning, which involves using games to cultivate knowledge, both are crucial to increasing engagement and motivation in class. For the sake of ease, in this article, we include both gamification, as well as, game-based learning approaches to discuss gamified educational environments and experiences. The article further delves into the need for gamification, its importance, how it is employed within and outside classroom settings to promote learning, and the future of gamification in education.

Who is it for, and how can it be employed in classroom learning?

Gamification has become an essential component of learning as its new age community of Gen Z and Millennials are already demanding new modes of teaching away from traditional methodologies that are fun, engaging, experiential and immersive. The online transition of the education system during the pandemic further necessitated this change. Many educators, teachers and practitioners rose to the challenge thrown by online learning by resorting to popular online games to bring innovation and excitement to the learning process. Popular games that were made part of the curriculum or used in classroom settings pre and post-pandemic include Minecraft: A sandbox videogame, Minecraft was used by educators across the US to teach courses on the environment, climate change geometry and math. Its classroom-mode app provides teachers control over the digital content explored by the student. Similarly, no workshop or training activity is complete without contestants competing against each other on interactive gaming platforms such as Kahoot/Mentimenter/Slido/TopHat. Recently, there have been instances where online video games have become part of the course curriculum. According to a Washington Post article, Odyssey and Assassin's Creed 3 became part of a history course at a college in Canada to substitute for a Greek field study. The students could easily access the games at the cloud-based streaming service, Google Stadia using the Internet.

Additionally, many professional degrees such as MBA, medicine or aviation are increasingly employing gaming tools to determine student responses in real-life situations. Some of the popular gaming tools in MBA include Virtual stock trading tools, simulations to understand supply chain logistics and profitability, and negotiation role-playing.

When is it needed?

All these online bases games, simulations and role-plays ultimately benefit students in more ways than imagined, thereby popularizing their use and inclusion in classroom learning. The employment of gamification and game-based learning is further necessitated by the need to provide an effective and immersive experience to students, especially when replicating the physical classroom-based learning model becomes challenging. The methodology has found favour amongst students due to the myriad benefits it provides that extend, but are not limited to:

- **Goal Setting:** Providing rewards and badges for reaching milestones encourage students to achieve goals within a defined timeline
- **Competition**: Pushing them to reach up the leaderboard or score more points and helping them towards self-actualization
- **Self-directed learning**: Aiding in better understanding, superior knowledge retention and higher productivity
- **Motivation**: Awarding both tangible rewards and intangible gratification to help Increase extrinsic and intrinsic motivation
- **Social Interaction**: Presenting an alternative to classroom-based socialization, social interaction and engagement through online-based gaming

Where else can it be employed?

Due to its multiple benefits and impact on engagement and motivation, this novel approach to learning has found applications in areas outside classroom learning. Some of the popular domains where gamification is increasingly used are:

Financial Literacy and Inclusion: Some companies are dealing with the issue of financial illiteracy among18-34 years by making education and financial management more fun and engaging, especially as the new age millennials and Gen Z find traditional/'boring' businesses less engaging. Spain-based Banco Bilbao Vizcaya Argenteria (BBVA) Game is a web application where customers earn points for watching educational videos on how to make banking transactions, use the mobile banking app or pay taxes online. Similarly, Discovery bank of South Africa and the Denmark-based Spiir app follow a behavioural banking approach. While Spiir makes customers aware of the key spending areas and includes psychometric testing to make them aware of their spending habits, Discovery bank incentivizes them through a reward system to maintain their financial health.

Adult learning: Gamification can be used to promote learning in adults, be it promoting adult literacy or mid-level executive learning of employees. According to Gabe Zichermann, the author of Gamification by Design, this approach leads to a 40 per cent increase in employee retention of skills and knowledge, hence providing a boost to adult learning.

Learning for coders and UX designers: The platforms like HackerRank, Coderbyte, CodeChef and many others promote learning amongst coders and developers through continuous challenges, practice exercise, judging competitions and feedback. The competition, motivation and skill development give a massive boost to coders, developers and UX designers to come up with innovations and showcase their skills, especially with things moving to the metaverse.

Voluntary Organizations: One may not need to look far to see how gamification has been used by many global non-profits to promote volunteer engagement. At Internet Society, the chapters are annually awarded performance-based badges to boost chapter motivation and engagement.

What does it mean for the future of learning?

All the above examples depict that gamification is increasingly gaining acceptance and popularity as an effective instrument of learning, leading to a higher demand for game-based learning technologies and tools. The value of the global gamification market has risen from USD 4.9B in 2016 to USD 11.9B in 2021. The game-based learning market is expected to grow at a compound annual growth rate of 20.07% to reach a market size of US$17.079 billion in 2026 from 2019.

The rise is touted to be fueled by an increase in Internet users, Virtual Reality (VR) and Augmented Reality (AR) in learning and education, an increased base of smartphone users and the use of online game and AI-based gamification platforms worldwide. Thus, the future of education is expected to be influenced, and to an extent, shaped by games. If one plays the game of building a future of gamification in education, one can imagine game-based learning and gamification revolutionizing the education industry in the following ways:

Re-imagining the physical classrooms with AR/VR supporting tools: Make the immersive experience a mandatory component of the curriculum in a class by setting up special AR/ MR labs and gear within the classroom. In the same way, in the hybrid ecosystem, virtual avatars of students can be created that will attend the virtual classrooms. Virtual avatars would resolve the problem of switched-off videos, muted students and student absenteeism on video-conferencing or online meeting platforms. Virtual classrooms can be redesigned to reflect more immersive and engaging settings like nature, historical places or plain old typical classrooms.

Mixed Reality Toolkits: Toolkits to carry Mixed-Reality (MR) experimentation outside the physical lab settings and in remote settings. This will allow students to experiment and innovate more in their course projects, encouraging them to produce original and differentiated work.MR is a perfect combination that brings together virtual and physical environments. In the new normal, Mixed reality is expected to take primary place in gamification approaches.

Integrating Arts and Technology: AI and VR can play a critical part in integrating arts and social sciences with technology. Putting students in historical contexts or real case political or legal scenarios can provide hands-on learning, a better understanding of lessons and give them a taste of how different reactions could have led to different results. This time-machine-like element will help them determine the best course of action in every scenario, allowing them to redefine the past in the present to create a better future.

Boosting game-based learning activity: Universities, gaming platforms and EdTech firms will have to collaborate to create more education-focused content that can become part of the curriculum. As more lessons need to become digitized or VR compatible, the universities can either partner with gaming platforms and EdTechs or set up their in-house technological/gaming departments to create game-based content as per the need of the course.

Utilizing data from gamification: Data collected from gamification activities can be utilized to help improve student performance, determine career paths and create profiles that may be used for future admissions, job interviews, and future employment. A unique student account can be created to record an individual's development from secondary school to college. The account would record their responses in a real-life setting through gamified and extra-curricular activities done in school and outside. The responses will help determine students' critical thinking skills, decision-making skills, knowledge and attitude. Performance in these gamified settings can become a key metric to form overall evaluations of the individual. This continuous evaluation will help shift focus away from rote-based learning or too-much reliance on a 3-hour examination to an individual’s performance in a real-life setting.

Gamification may have drawbacks such as increased involvement with online games, reduced attention span, over-exposure to screen time and substantial investment in AR/VR gear. Nonetheless, gamification and online game-based learning have acted as a boon and necessity during covid-19. They have effectively worked to bring the antithesis of fun and studying together.

Nandita Koshal is the current President of ISOC India Mumbai Chapter. She has worked for 5+ years in the education industry. She now works as a consultant at Deloitte, Canada.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HYFLEX MODEL: A NEW PARADIGM IN EDUCATION?

JUHI KHETAN

The term "HyFlex" comes from the amalgamation of the word "Hybrid" with "flexible". The term "hybrid learning" refers to a kind of education that combines offline and online educational activities to achieve the same educational goals as their traditional counterparts. In a hybrid class, students participate in online and in-person assignments and discussions in the same mix as their instructors do. In contrast, the "flexible" aspect of HyFlex is that students decide how they participate in the course and engage with the material in the manner that works best for them throughout the course and as they progress. This aspect of HyFlex allows students more control over their educational experience.

Dr Brian Beatty was the first person to invent the HyFlex learning system. According to Beatty, a course is HyFlex if it "enables a flexible participation policy for students". The definition means that students have the option to either attend face-to-face synchronous class sessions or complete course learning activities online even if they do not physically attend class. At San Francisco State University, Beatty integrated HyFlex learning into the curriculum for graduate-level courses.

The HyFlex model developed by Beatty incorporated the following four principles:

1. The opportunity for students to make their own decisions is what HyFlex is all about
2. The equivalent value of all learning activities, whatever the medium in which they are presented
3. The opportunity for every student in the class to reuse any and all of the activities, lectures, and multimedia components
4. Ensuring that all students are equipped with the necessary technological capabilities to access all available modes of instruction

Students can pick how they would want to participate in each session of their HyFlex class, which is one of the primary advantages of these classes. Access is increased for students who have difficulty with traditional classroom instruction due to online learning. Students who struggle with their finances may not be in a position to purchase the necessary computers and high-speed internet connections to participate in fully synchronous online programmes.In contemporary times, particularly in the wake of the pandemic, almost all educational institutions have chosen to use this paradigm.

Students have the option to participate in one of the three different ways, including:
1. Participate physically by attending lessons held at the actual location of the school
2. Take part in the lessons using one of the many available online platforms, such as Microsoft Teams or Zoom
3. The only way to participate fully is to do so asynchronously via the assigned coursework

A HyFlex model makes it possible for all the students to accomplish the same learning goals because it makes all the class meetings and materials accessible to all the students. It allows the students to access the information, both in-person and online depending on what is most convenient for them. Education has become more convenient due to the development of new technologies, which has made the Hyflex model highly useful for students in several ways.

Lessons taught one-on-one at predetermined times and places, supplemented by reading assignments and duties, are completed outside the classroom. Recent developments have included integrating digital technology into the classroom setting as well as providing students with online and blended learning opportunities. The future of higher education lies in online learning. Benefits are gained from both fully and partially online learning. Complete online education does away with the necessity that students should live close to their chosen college or university. It also lessens the restrictions of location and time, as well as costs and other barriers to higher education. Blended learning provides students with the flexibility to engage in a manner tailored to their requirements and offers teachers a variety of options to foster student learning.

The COVID-19 epidemic has expedited the development of online-only forms of higher education, even though blended and online-only forms of higher education have risen globally due to the benefits that they provide. This adjustment was a difficulty for both teachers and students. Students may have difficulty maintaining their learning progress (for example, engaging with course content or managing their time) if their lecturers do not provide them with a significant amount of face-to-face feedback and coaching. Self-regulated learning (SRL) is an active and constructive process in which learners establish objectives for their learning and then monitor, regulate, and manage their cognition, motivation, and behaviour led and restricted by their goals and the environmental context in which they are learning.

For higher education students to make progress, feel happy, and achieve success in online learning environments, SRL is essential. According to research, to be successful, online students need to demonstrate higher levels of autonomy and engagement than traditional students. Students' engagement, knowledge, and overall academic performance may all benefit from technological advancements. The affordances provided by technology allow teachers to deploy interactive strategies and resources.

Learners who place a high priority on flexibility and freedom go towards online learning, while those who place a higher value on structure and social presence gravitate toward blended learning. Studies on COVID-19 are still in the early stages of comparing face-to-face, blended, and online teaching. These studies include a study on higher education students enrolled in courses provided simultaneously in both modes of learning, also known as the HyFlex mode.

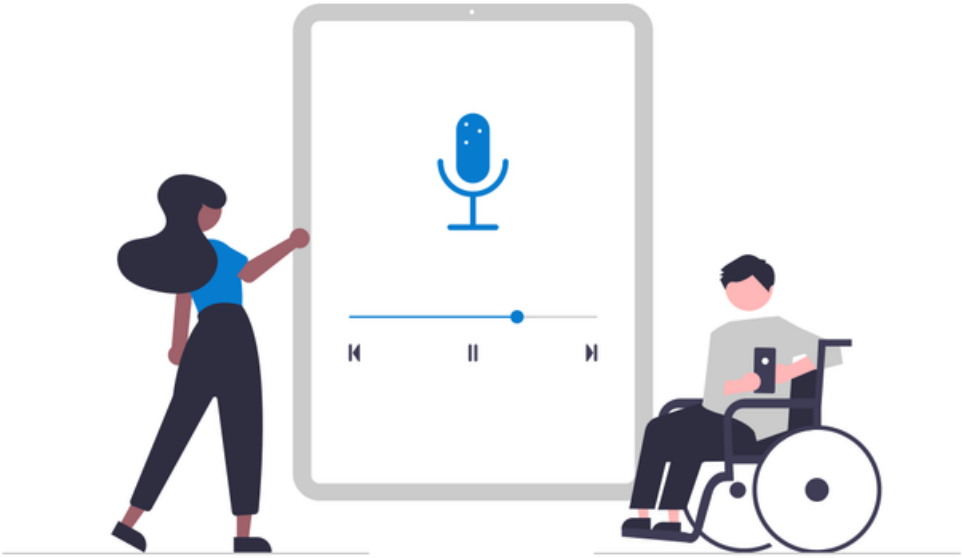
Researchers studying successful online courses discovered that students' impression of immediacy in instructor-student, student-student, and student-content interactions increases their happiness and decreases their feeling of distance from their learning environment. In HyFlex mode, however, students are physically and digitally present, making it difficult for the two groups to participate in activities that foster participant interaction, such as pair work, group work, and discussions.

To this day, there has not been a sufficient amount of study done on the advantages of HyFlex in terms of the level of pleasure experienced by students. They reference qualitative research that was conducted on adult graduate students and concluded that HyFlex was useful in fulfilling the demands of students, as well as how it fits into their schedules. The findings of this research also

Juhi Khetan is a final year law student at Jindal Global Law School where she has been a product of HyFlex model. She is a volunteer and Treasurer at ISOC India Mumbai Chapter.

ASSISTIVE TECHNOLOGY: MAKING EDUCATION ACCESSIBLE

NUPUR VIJH



Technology is everywhere and has enhanced our lives in ways we could not even imagine. It has revolutionised the world in every possible way and made life easier for everyone. Out of the many ways that technology has enriched our lives, one compelling example is Assistive Technology. Assistive Technology refers to the tools to help people with special needs, specifically, people with learning or motor disabilities. Assistive technology refers to any piece of item, equipment, software program or product system used to help maintain, improve or enhance the functional capabilities of people with special needs.

Assistive Technology can increase a child's self-reliance and sense of independence. This technology can mean the difference between a student lagging being studying in an inclusive classroom. It promotes greater autonomy by enabling people to perform tasks they were formerly unable to accomplish or had great difficulty accomplishing by providing enhancements to or changing methods of interacting with the technology needed to accomplish such tasks. Assistive Technology can be customised according to the needs of a child and help them achieve the desired result and success. With assistive technology, there is no limit to what kids can accomplish.

There can be different forms of assistive technology devices and can range from as low as a simple pencil foam grip to as high as special-purpose computers. These devices can help in the daily existence of a person when performing activities like bathing, dressing, hygiene, eating, etc. Assistive Technology can also be environmentally adapted as door openers, ramps, and systems designed to remotely control appliances

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Assistive technology is so massive and diverse that it is integrated into vehicle modifications like adapted hand controls, ties, adaptive seat belts and lockdowns for securing a wheelchair to the floor. Educational toys are adapted as well. A simple switch can make a world of difference for the kids who want to play. Hence, assistive technology helps in all aspects of the life of a person, who needs them not only for their daily existence but in making friends, learning, gaining education and succeeding in life.

There are so many success stories surrounding assistive technology that has helped students with special needs integrate into the classroom, make friends and learn in ways they want to. Malika*, who suffers from cerebral palsy and is a quadriplegic in a wheelchair, can successfully communicate through her touch chat and her sip and puff** successfully writes stories about her journey. Collen*, who suffers from autism (level 3-extreme autism), can now hold a job, thanks to flying finger wearable mouse control, which allowed him to gain control over the computer and the mouse.

However, the future seems to be more exciting than this present technology. With the advancement of technology, there seem to be many other possibilities which can help people in need. In the future, there is a possibility of cars for the visually impaired that will give them the luxury of not depending on their family or public transportation. A car, which runs on auditory commands, vibrations, and self-driving capabilities, can be created. There can also be a possibility for stair climbing wheelchairs that will allow a person with disabilities to move up and down without leaving the chair. Also, in future, there might be exoskeleton suits, which can give a chance to walk to those with weakness and limited movement. There also be robots which will help the specially abled to do their daily chores. There can also be assistive visual technology which will help those with visual disabilities to "see" without their eyes. So, we are talking about a world of possibilities which will leave us amazed.

Hence, assistive technology can help do wonders and change people's lives in the most unexpected ways. However, simply building such technology won't help. It has to be affordable and accessible to all. We have come a long way, but still, a lot needs to be done. Technology can help to a certain extent, but we need to accept the special needs people with all our hearts, and that will be the greatest that any technology can provide.

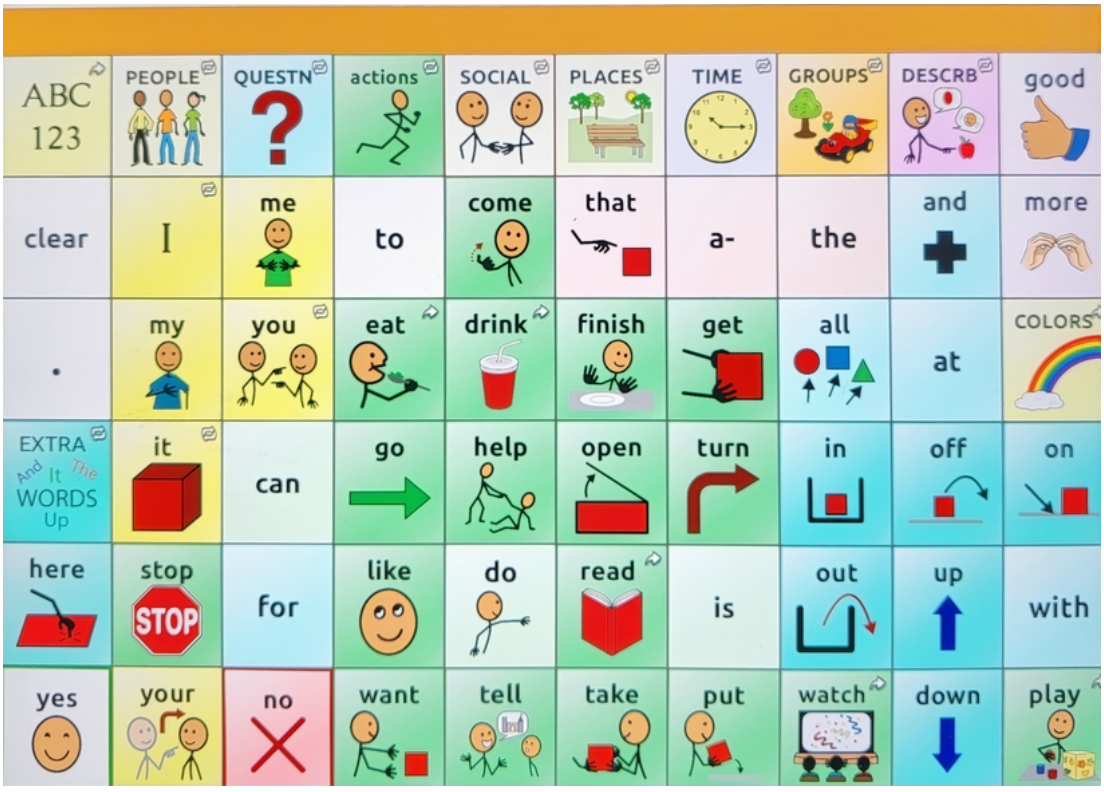
** These are real-life examples but the names of the students have been changed for confidentiality.*

***Sip and Puff devices allow people to use a computing device who are unable to do so with their hands. Users “take a sip” or “blow a puff” of air into a wand that resembles a straw to create air pressure. This air pressure sends a signal to the device and ignites certain commands–just like a keyboard or mouse.*

Some technologies used in real classrooms, changing lives for the better:

Big Mack- It records any single message directly and plays it up to two minutes in length. The assistance helps the students with visual disabilities and those who require a larger activation surface to communicate.

A Touch Chat screen - The device helps students with extreme autism or verbally challenged students to communicate.



Nupur Vijh is Client Service Worker at Ministry of Social Development and Poverty Reduction at British Columbia Publics Service, Canada. She has previously worked as a Special Education Teacher in Canada and currently serves as Secretary at ISOC India Mumbai Chapter.

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PROTECTING CHILDREN ONLINE: WOMEN IN LEADERSHIP SPEAKER SERIES IV

AN ISOC INDIA MUMBAI CHAPTER WEBINAR REPORT

30th April 2022

Dr. Tamali Sen Gupta serves as the Principal, TSG Legal Pvt Ltd and Independent Director on Boards. She has over 36 years of experience in law and has been an active voice for child safety, having served as a part of the three-member expert group set up under the Ministry of Women and Child Development on child protection. She has also served as a Board Director for many prominent organisations including HFCL, SREI Infrastructure Limited, and Aria Hotels Pvt. Ltd, Sony Pictures Entertainment Films.

About the Women in Technology Leadership Series

Women in Technology Leadership (WITL) series is an initiative by the Internet Society(ISOC) India Mumbai Chapter to celebrate the women who have been creating a mark for themselves in the technology leadership space. As the only all-women-leadership-driven Internet Society chapter, ISOC Mumbai envisions creating an empowered, innovative and inclusive community that can help leverage the power of existing and emerging Internet-based technologies to make an impact. Aligning with this vision of ISOC India Mumbai to further, promote women's leadership in the technology sector, the chapter organised its fifth webinar in the WITL Speaker Series on the theme "Protecting Children online".

The revolution called the Internet has affected the lives of everybody around the world including children. Children go on the Internet to explore the world beyond theirs, which could not have been possible without the technology present in their pockets. But seldom do we talk about children's safety online, despite the fact that there is the presence of an entire dark web on the other side of the Internet.

To further talk about this aspect of the Internet, the Internet Society India Mumbai Chapter invited Dr Tamali Sen Gupta to discuss the various legal, technological and societal challenges that Internet can pose to child safety online. The moderator for the session chapter advisor and volunteer Prateek Pathak began by asking Dr Gupta to share her foray into the area of child rights. Dr Gupta shared that she has been an active voice for children's safety for the last many decades. She started getting involved in this issue in 2004 when she helped the government to draft an act around the Children's Rights Protection Act. Through this, a three-member committee was set up to interview around 15000 children. The results that were analysed were terrifying, as the committee found that around 5000 children wanted to be rescued from their very homes. The studies also realised that this abuse was somehow being justified by the families under the garb of patriarchy, misogyny and entitlement. Through the efforts of this study, the POSCO act was passed. However, according to Dr Gupta, there is still a huge gap which needs to be mended. Dr Gupta further mentioned that now with the introduction of the Internet, there is suddenly an additional risk to the children, as children have no legal rights and it is very easy to victimise them in this case.

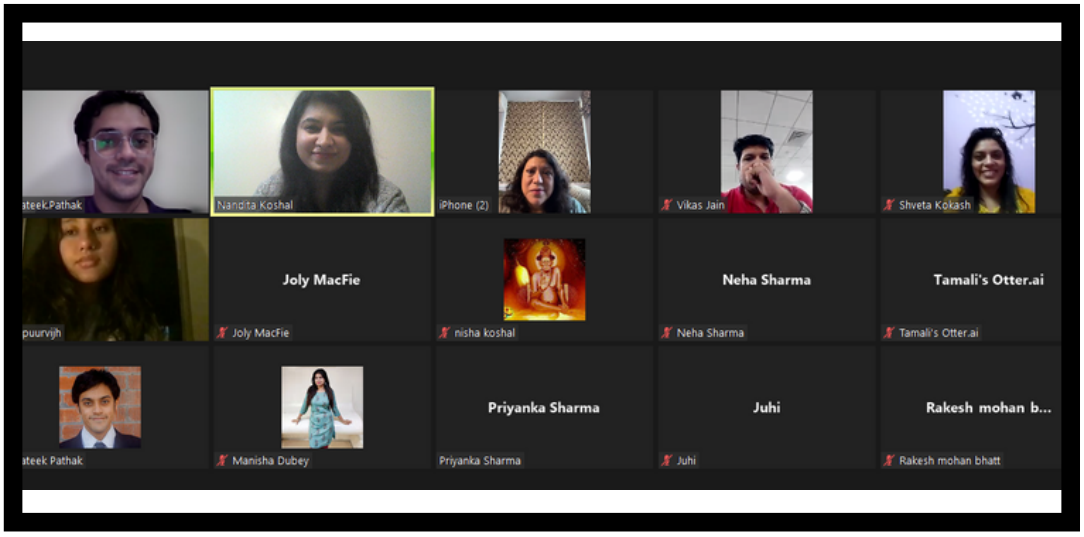
Being online, children are not only susceptible to dangerous games like the Blue Whale, but they are also interacting with people outside their reach and sharing their information with them. Hence, they become vulnerable to the crutches of traffickers or other dangerous elements. Responding to the moderator's question on whose responsibility it is to balance child rights in an online age- Parents, Schools, Internet companies or governments? Dr Gupta said that there is a generation of parents who have not understood the technology or the risk associated with the same. There has also been an increase in massive bullying through social media, affecting both genders. The schools and teachers are trying to help however even they need to be equipped with the proper training to tackle difficult issues of law and order.

When asked about whether there is a need for re-thinking child rights in the digital age and are there any frameworks that Internet Governance-based organisations like ISOC can imbibe? Dr Gupta reflected that the solution to the problem is difficult. There is no one solution and the Indian mindset makes it more difficult to help find a solution for this problem as there is a lack of understanding and a lack of belief that something like this is even happening. However, a lot of organisations are working on solutions reigniting hope, though it is still a long way. Dr Gupta further added that children's rights need to be also made human rights and although children are not considered a "vote bank" but still the government needs to treat them equal in every aspect.

Moving on to the question and answer round, Prateek asked Dr Gupta what should policymakers do in order to get qualified access to information to implement impactful programmes catering to the previously discussed issues. In response, Dr Gupta advocated that schools should take preemptive measures and engage experts to teach children about cyber abuse, teaching them how to protect themselves online from hacks especially those schools that have a Hi-Tech component. She also emphasized that there is a further need for a push from big tech giants like Facebook and Google to initiate discussion and provide thought leadership on these issues. She also proposed sensitizing the police as another effective way to combat cyber-crime against children.

On the question of whether there is any specific set of guidelines that teachers, educators and educational administrators can keep in mind when dealing with child rights issues online, Dr Gupta shared that it is essential to understand the cause for provocation as well as the potential gains from a particular behaviour in order to protect people from such behaviours. People need to put their personal belief, their personal biases aside to protect children till the time they are old enough to understand the consequences of their actions. She also added that as it is a hydra-headed problem, there is a need for a multi-pronged solution. School teachers need to collaborate with psychiatrists and other law enforcement agencies to first, acknowledge and understand the problems; and then provide a customized set of solutions to reduce the incidences of such occurrences.

The session concluded with Dr Gupta opining that cybercrime is a criminal law issue. It is not separate from the Internet. The Internet is simply a delivery mechanism for prospecting children for criminal activities, which reaches them easily and serves as a simple mode of access for criminals. Therefore, protecting children online is the need of the hour.



A click from the event

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MEET THE CONTRIBUTORS

ANAMIKA SRIVSATAVA
Author

FEROZA R. MODY
Design

JUHI KHETAN
Author

NANDITA KOSHAL
Author, Editor & Design

NUPUR VIJH
Author

PRATEEK PATHAK
Author

This is a publication from the ISOC India Mumbai Chapter. To share your feedback, please write to us at secretary@isocindiamumbai.org or visit us at https://isocindiamumbai.org/.

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India Mumbai