EMPOWERING TEACHERS IN THE DIGITAL EDUCATION ECOSYSTEM

India

July 2020
“There can be infinite uses of the new age technology, but if teachers themselves are not able to bring it into the classrooms and make it work, then it fails”

— Nancy Kassebaum

As India embarks on the Fourth Industrial revolution, technology is set to play a conspicuous role in nearly every aspect of our lives. The Institute for the Future partnered with Dell Technologies to explore the Future of Work, which reports that 54% of Global Business Leaders predict the next generation of workers to disrupt the workforce with their ingrained digital skills and mindset. This will lead to the older generations shutting out parts of the economy by 2030. In parallel, the World Economic Forum predicts that 65% of children entering primary school will find themselves in occupations that do not exist today.

While organizations are facing a skill shortage, our educators and students are struggling to keep pace with technology advancements. As India outlines her roadmap to gallop towards becoming a $5 trillion digital economy, we must focus on keeping our education ecosystem nimble, adaptive and resilient to overcome any uncertainties like we have witnessed in the first half of 2020.

Education is fundamental to form an equitable society. With nearly 1 in 4 people below the age of 14 years, India today stands at an inflection point. While it is widely agreed that the Indian education system has made significant progress in recent years - particularly in terms of access, there is an active quest for better delivery and quality of education. The foundation in this pursuit of access to quality learning is the teacher. A Japanese proverb rightly states, “Better than a thousand days of diligent study is one day with a great teacher.”

The world marveled at the agility of teachers to adapt, rather create, a new normal in face of the pandemic that has redefined the global contours of education. This year also emphasized the importance of bridging the digital divide to provide equal opportunities to students, teachers, and schools across the board. The need to consider the teacher as the central pivot of our education system is undoubtedly pertinent. To be resilient in the coming times it is imperative that we equip our teachers with the necessary access and training to be delivered in the face of changing technological and pedagogical landscape.

The National Education Policy 2020 lays the right aspiration for our education ecosystem. I strongly believe we can make a dent in this system only when different stakeholders join hands with the Central, State, and Local Governments to do so. The industry, think tanks, civil society, and most importantly the education providers need to collaboratively work towards affecting any change. The question is no longer about what technology can contribute in transforming the education sector. The dilemma we now face is HOW can various elements of the education ecosystem become more effective, efficient, and measurable by leveraging technology-led transformations? This is at the heart of Dell Technologies’ Social Impact Plan for 2030.

It is with this intent, that we curated the Dell Technologies PolicyHack for Teachers in January 2019. Our earnest attempt was to create a platform where teachers can brainstorm about how they can cope better in the rapidly transformative digital world and in the process share first-hand insights with policy makers, think tanks, industry, NGOs, school administration and most importantly with fellow teachers, who are traversing a similar journey. I feel proud and humbled that our endeavor witnessed participation from over 700 teachers across the length and breadth of the country. This report consolidates winning suggestions and hacks that came out of this four-city exercise.

On behalf of Dell Technologies, I earnestly thank UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development for partnering with us through 2019 in conducting the hacks. I also extend gratitude to our esteemed jury members, who invested their extremely precious time towards this cause and in turn demonstrated their passion to help teachers succeed.

I hope this report will provide useful inputs to the discourse on education in India and enrich the learning outcomes in the years to come.

Sincerely,
Alok Ohrie
President and Managing Director
Dell Technologies India
The digital medium offers endless opportunities for learners to explore, interact, experiment, experience and have fun while learning. In addition to providing the flexibility of operating from a non-physical common learning environment, the digital medium provides access to limitless learning resources and content at the touch of a button. Furthermore, the digital medium offers the opportunity for multi-modal learning, using a wide variety of tools such as games, imagery, storytelling, and videos that can help make learning experiences fun, immersive and interactive. Moreover, the advancement in artificial intelligence allows flexibility for individualised learning experiences – based on the abilities and interests of learners, allowing them to advance at their own pace in the different areas of skills and competencies. We must not waste the opportunities and advantages the medium offers; we must seize them and ensure they are used wisely for the flourishing of the individual.

DR. ANANTHA DURAIAPPAH
Director, UNESCO MGIEP
Introduction

DELL TECHNOLOGIES SOCIAL IMPACT PLAN FOR 2030

At Dell Technologies, we are committed to driving human progress. Through our reach, technology, and people we strive to create a positive and lasting impact on humankind and the planet.

To turn our vision into reality, we established four moonshot goals: Progress Made Real 2030; Advancing Sustainability, Cultivating Inclusion, Transforming Lives, and Upholding Ethics and Privacy. These goals, aligned to the Sustainable Development Goals (SDGs) adopted by the U.N. Member States in 2015, set forth a global vision for peace and prosperity for people and the planet.

Dell Technologies PolicyHack for Teachers in India is aligned to moonshot goal of Transforming Lives.

Our goal is to deliver sustainable connectivity and technology access to schools and communities wherever they are. We believe access to technology dramatically improves lives. As a global technology leader, we embrace the responsibility of the digital era before us, ensuring everyone is included and applying technology in meaningful ways that reflect humanity and shared values. With our technology and scale, we aim to advance education initiatives to deliver enduring results for 1 billion people by 2030.

With the objective of transforming lives, we have been helping governments across continents in raising digital literacy rates, equipping schools with digital infrastructure, delivering ICT training to school teachers and leaders, and bringing the transformational power of technology to young learners who cannot access technology at home. We have helped 16 million people, directly and indirectly, through our Youth Learning initiatives, and are well on our way to reaching millions more through strategic partnerships.

In Africa and Latin America, we are harnessing the sun to create solar-powered classrooms we call Solar Learning Labs. We now have 20 labs, which have provided nearly 17,000 students access to technology. Working with the Ethiopian Ministry for Education, we’re equipping over 1,000 schools with more than 24,000 Dell computers, while our nonprofit partner, Camara Education, offers information and communications technology training for school leaders and teachers.

Dell supports National Institution for Transforming India i.e. NITI Aayog’s program, Atal Tinkering Labs (ATL), under which students from grade 6 - 12 are exposed to advanced technologies and technical equipment such as 3D printers, robotic kits, electronic development tools, IoT, sensors, etc. We also run a pan-India PC for Education initiative designed to help parents, teachers and children find firm footing in Digital India. Through this initiative, we have engaged close to 1.5 million students through our Dell Champs School contact program. In association with NITI, we are aiming to train and certify 1,00,000 teachers from over 5,000 schools across 70 cities.

QUALITY EDUCATION AND TEACHER-CENTRICITY

As technologies emerge and create newer pressures to reform, it has never been more important to focus on education reforms, lifelong learning, and reskilling initiatives. According to the 2018 Future of Jobs Report, 75 million jobs are expected to be displaced by 2022 in 20 major economies. At the same time, technological advances and new ways of working could create 133 million new roles, driven by large-scale growth in products and services, which we cannot fathom today.

The Indian education system, which is among the world’s largest and the most complex, with over 230 million students enrolled in more than 1.5 million schools, has achieved significant improvement in enrollment and diversity of gender in classroom over the last decade. As per the 2018 Annual Status of Education Report (ASER) released by NGO Pratham, since the year 2007, the enrollment of children in the age group 6 to 14 years has been above 95%. With the exception of four states, more than 95% of girls in the age group 11 to 14 years did not drop out of school. Despite these laudable achievements, change in learning outcomes continues to be slow and uncertain. With 600 million young people (i.e. under 25 years old), quality of learning is a major impediment in India’s readiness to embrace Future of Work. It is no wonder that education continues to be among the most significant policy agendas on any country’s radar.

On one hand, technology can enable unprecedented and uniform access to education. On the other, however, the sheer size of the country makes it difficult for policy and execution to keep pace with a fast-changing global environment. At the same time, technology alone cannot balance this equation and is in no way a replacement for a teacher. However, technology is an enabler that gives great teachers the ability to be transformation agents.

Teacher vacancies and ineffective teaching methods pose significant barriers to learning. According to government figures, 3.5 million teachers receive In Service Training (INSET) each year. A study from one state (Uttarakhand) in 2017 found that only 19% of teachers had participated in INSET in 2015–16. It was noted that a large number of teachers skip mandatory training for a number of reasons, including logistical difficulties (particularly for women, who may have more responsibilities at home and so sometimes are unable to travel), a lack of interest or skepticism towards the value of the training. There are numerous studies that document reluctance of teachers in undergoing ‘training’, including evidence of training ‘fatigue’ and a lack of belief in the training due to poor planning, unsuitable resource persons and little follow-up.

Exacerbating these challenges is the constant tussle between updating curriculum to reflect the rigors of the 21st century workforce as technology catalyzes significant changes across industries. In this environment, Indian students must be taught how to learn and continually seek and apply new knowledge in ever-changing settings as they prepare for future careers. Central to the government’s efforts to reform and revamp the Indian education system is the integration of technology into classrooms to build teacher capacity and improve learning outcomes.

©EDUCATIONAL STATISTICS AT A GLANCE, 2018 (Link) | ASER, 2018 (Link) | Chhotagothi, Motyala Pradash, Rajachan, Uttar Pradesh (Source: ACER 2018)
The challenges that we, therefore, set to address with PolicyHack were:

- Where does the technophobia in many teachers set from? And if there is fear of technology, why has it not led to a more open disposition to training?
- Why are many teachers hesitant to create their own content, which is customized for their classes?
- How can the perception issue that technology will make teachers redundant be addressed?
- And more importantly, what is stopping teachers from embracing technological revolution that will help them become better at what they do?

One thing was abundantly clear, to transform the Indian Education landscape, we need to foster a dialogue between various stakeholders: the policymakers (government), subject matter experts (think tanks and educators), the enablers (industry), the changemakers (the civil society), and of course the key subjects (school administrations and teachers). Without the reach and expertise of these various actors, no change would be sustainable.

**HIGHLIGHTS OF NISHTHA**

**National Initiative for School Heads’ and Teachers’ Holistic Advancement**

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<th>Capacity building of 4.2 million teachers</th>
<th>Integrated training of principals/heads as key academic support</th>
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<td>Focus on competency and higher order thinking skills based teaching learning</td>
<td>Training of all heads and teachers as first level counsellors</td>
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<td>Promoting experiential and joyful learning</td>
<td>Awareness on centrally sponsored schemes/initiatives</td>
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<td>Online monitoring and support system</td>
<td>Convergence of multi-departmental efforts</td>
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<td>Activity based training modules</td>
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Promoting experiential and joyful learning

Animated by this mission, the Government has introduced flagship programs including the National Initiative for School Heads’ Teachers’ Holistic Advancement (NISHTHA) teacher training program and the Digital Infrastructure for Knowledge Sharing (DIKSHA) online curriculum portal for educators. Meanwhile, the Ministry of Human Resource Development is finalizing its draft National Education Policy, which is poised to dramatically reshape public education in India, including broader technology integration and online curriculum deployment.3

**DELL TECHNOLOGIES POLICYHACK FOR TEACHERS**

With the intent outlined in the previous section, Dell Technologies partnered with UNESCO Mahatma Gandhi Institute of Education for Peace and Sustainable Development (MGIEP) to host a series of four PolicyHacks for teachers across India in 2019. Held in Delhi, Maharashtra, Assam, and Andhra Pradesh over the course of a year, the PolicyHack series brought together teachers, policymakers, ed-tech entrepreneurs, innovators, and scholars to identify and come up with solutions for some of the most pressing challenges facing teachers in classrooms across India.

We received entries from over 700 teachers, of which more than 250 teachers joined us in person across the four regions for PolicyHack. They were joined by a distinguished panel of judges for each round.

Participants competed to propose innovative, technology-driven, policy solutions to either one of the following challenges:

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of five challenges affecting educators or identify another challenge to hack. The five themes created based on inputs from various teachers and educators were:

**On-the-Job Learning:** Are teachers sufficiently trained to use technology in the classroom? How can on-the-job learning be used to help teachers upgrade their skills?

**Equalizing Learning for All:** How can teachers use technology to create more equitable access to high-quality education irrespective of diversity in factors such as: geography, socioeconomic status, gender, and disability in any form?

**Creating Customized Content:** What support do teachers need to be able to create unique and customized content, including digital content, for their classrooms?

**Peer Learning:** To what extent teachers across schools and districts are able to share best practices, collaborate to solve problems, and serve as mentors to each other?

**Assessment, Monitoring, and Evaluation:** What is the best way to evaluate teacher performance and how can technology support effective monitoring, assessment, and evaluation on a local, state, and national level?

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**SANJAY AWASTHI**
IRS, Member Secretary, National Council for Teacher Education

We need to focus on a collective ecosystem is ensuring equality of access. It is important that students from economically weaker sections are given the same opportunities to dream and achieve things as their more privileged brethren. To that end, technology plays a very integral role. If used judiciously, technology can be a great leveler for students and teachers. Teachers should be encouraged to implement solutions and employ interventions that nudge children to embrace learning.”

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Recommendations

1. Empowering Teachers in the Digital Education Ecosystem

At PolicyHack, the ideas pitched and discussions that followed, produced various insights on how teachers can leverage technology as a force-multiplier for equality and accessibility of quality education and in improving overall learning outcomes. Though regional nuances emerged over the course of four PolicyHacks, the stakeholders coalesced around several common recommendations to help build teacher capacity and improve learning outcomes.

These 10 recommendations and insights can be bundled under three broad trends.

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KEY FINDINGS AND RECOMMENDATIONS

**PACE OF TECHNOLOGICAL EVOLUTION**

1. Introduce structured pre-service and in-service interventions
2. Train teachers for modern ICT tools for everyday tasks
3. Soft skills to help teachers become better facilitators and leverage tech-enabled classrooms
4. Repository of recommended content as per academic curriculum in vernacular languages

**CULTIVATING INCLUSION**

1. Leverage cloud-based platforms to create regional collaboration networks to support administrative capacity building across schools
2. Recognition of best practices and breakthroughs to create mentor-mentee connections between schools

**PEER COLLABORATION & LEARNING**

1. Technology as a leveler across economic strata
2. Affordable, updated and high-quality, vernacular e-content
3. Prioritize learning and access needs of people with disabilities/special needs
4. Regional content curation with multimedia modes of dissemination to promote inclusion and resilience

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1. Pace of Technological Evolution

The rapid pace with which technology is advancing is creating an inherent friction between teachers and technology. This sense of overwhelm is common among teachers across geographies, who on the one hand acknowledge that traditional learning environments stand disrupted, but on the other are struggling to acquire requisite skill sets to fit the digitally-enabled classroom. In the process of PolicyHack, we also observed that even schools that are digitally enabled to some degree were not aware of their cyber security and data privacy standards. Owing to Moore’s Law in action, many students understand tech-functionality better than mid-career teachers.

Additionally, the multiplicity of roles a teacher plays in a classroom (teach, register attendance, check examinations, counsel students, administrative duties, and many others) leaves her/him without much time to invest in personal and professional development. Many teachers quoted that with so many tools, pedagogical interventions, training programs, they have often felt lost on where to start and how to keep abreast with the developments.

The key hacks focused on addressing this challenge are:

1.1 Introduce structured pre-service and in-service interventions: While there are various training programs being launched by various stakeholders, few avenues exist where teachers can share their feedback on training design to be incorporated/considered in training design. Because of this, many trainings offer limited customizations that don’t reflect local/regional issues. This in turn limits the efficacy of these trainings for teachers, who are unable to translate it into classroom practice. There are many instances where new equipment/tools are underutilized, or not used at all, because teachers have not had experience in using devices before. Teachers were cognizant of the funds dedicated to this effort but highlighted sub-optimal impact because of this concern.

The last few years have seen a surge in ground level interventions undertaken by civil society organizations as well as Corporate Social Responsibility (CSR) funding directed to enhance teacher capacity. To do away with one-size-fits-all approach, guidelines on customizing training content should be created that should be adopted at a state level and be broken down into an individualized professional development plan at a school/cluster level, including at Teacher Training Institutes. Teacher profiling for both pre-service and in-service trainings could be an effective resolution, wherein various factors are covered such as language, digital maturity, access to PC/tablet/smartphones, and other local nuances. A comprehensive baseline study should be conducted to assess the proficiency of teachers vis-à-vis local variables. Incentives and recognition, by school and local governments, could help in attracting teachers to proactively enroll for in-service trainings.

1.2 Train teachers on using digital tools for everyday tasks: Teachers who are behind the curve on digital adoption have a morbid fear that ICT-enabled education will replace them. Lack of training, limited familiarity with education technology, and lack of support from schools makes teachers resist transition to smart classes and adoption of new classroom tools. Lack of understanding of these tools also limits school’s ability in guiding teachers in traversing this learning journey. While there are structured programs to train students on using basic online tools, there are not many avenues for teachers to learn basic functionality of available devices and solutions.

A proposed solution is two-fold: One, increase access to personal computing devices that teachers can experiment with from the confines of their homes (during post-work hours). And two, teacher training modules should lay emphasis on building familiarity with modern ICT tools and offer practical exposure to using tools in a classroom. To promote familiarity with end-point devices, Schools and Teacher Training Institutes could maintain a repository of equipment that teachers could access to personal computing devices that teachers can experiment with from the confines of their homes (during post-work hours). And two, teacher training modules should lay emphasis on building familiarity with modern ICT tools and offer practical exposure to using tools in a classroom. To promote familiarity with end-point devices, Schools and Teacher Training Institutes could maintain a repository of equipment that teachers could
Technology has a transforming impact on our lives. Today, technology continues to enable the creation of an interconnected and highly mobile workforce. And therefore, ensuring equitable access to technology is critical in driving employability for our students in both the domestic and international market. To that end, there exists an opportunity for the government and industry to collaborate and enable our future generations to become productive members of the global economy. The role of the private sector in facilitating access is immense and forms the foundation of a collective ecosystem which can positively transform the learning experience for both students and teachers.

VINITA GERA
Sr. Director & General Manager, India CoE, Dell Technologies

There are schools in urban centres which have access to seamless internet connectivity, but on the other hand there are villages where teachers must trek for more than 15 kilometers to even reach a school. Faced by such diverse challenges, it is at times difficult to devise timely and customized policy interventions that would work best in a singular context. Therefore, it is imperative that we develop a comprehensive, data driven analysis of classroom dynamics to address the challenges. Instead of abrupt introduction of state-of-the-art technology, schools need to carefully adopt ICT tools after proper evaluation and assessment.

VISHAL SOLANKI
IAS, Commissioner of Education, Maharashtra State

borrow on a periodic basis. Once they are confident of using it further, they should be encouraged to invest in owning a personal device (PC/ laptop/ smartphone) by support from school, governments, and industry. Schools and industry could consider easy financing options to help teachers - local administration could consider schemes to support teachers to this end. This could enable teachers in signing up for self-learning modules as well as promote their role in creating customized content.

1.3 Soft skills to leverage tech-enabled classroom: Enabling a workforce for the future requires imparting softer skills such as Emotional Quotient, Resilience, and Critical Thinking. Teachers are the key conduits of sparking these traits in foundational years as well as throughout the learning journeys. With increased digital touchpoints in a classroom, teachers shared their struggle about lack of soft skill trainings that can help them become better facilitators. Akin to other professions, many entries pointed to limited avenues for defining and honing leadership skills from the perspective of teaching.

The proposed solutions touched upon creation of opportunities where teachers, who are adept at using digital ‘tools’ are trained further on how to become a better mentor, guide, and a facilitator who leads a classroom. This should become a parameter for annual assessment of teachers. UNESCO MGIEP’s framework of promoting Socio-Emotional Learning (SEL) found a lot of resonance with participants. SEL has emerged as competencies through which individuals recognize and regulate emotions, identify positive purpose, demonstrate empathy for others, take constructive action, and promote human flourishing. With origins in emotional intelligence, SEL skills are powerful competencies since they have been shown to (a) facilitate learning (b) build emotional resilience (c) promote prosocial behavior and (d) instill pluralistic thinking.

1.4 Lack of training material structured as per academic curriculum: From lack of information a few years ago, we are today at a stage where information deluge is a bigger challenge to maneuver. With a variety of content providers and information sources, teachers are struggling to make sense of unstructured inputs thrown at them from various sources, including word of mouth. While some self-learning platforms offer structured module-based learning, most information sources do not link these trainings to existing academic curriculum. For teachers who have just forayed into how they can leverage technology to teach students, accessing relevant content becomes a mind maze. Also, many times available modules are not updated so as to reflect developments in today’s day and age.

A repository of recommended content, mapped as per the academic curriculum needs, should be created as a ready reckoner for teachers in vernacular languages. These recommendations should be updated on a quarterly basis and teachers should be encouraged to share feedback on relevance of content and its structure. Government initiatives such as SWAYAM and DIKSHA are relevant initiatives, and many offerings from Ed-Tech players are also helpful. However, there should be a regular cadence to seek feedback from teachers/ schools on usefulness of these tools.

2. Cultivating Inclusion

We are a diverse country; various factors contributing to this motley of students and their learning needs are the digital divide, socio-economic structures, diagnosed disabilities, gender, languages, cultures, livelihood of parents, and many others. While technology promises to bridge these gaps and foster inclusivity, some of these barriers continue to impede progress.

Challenges and related hacks to build a truly inclusive learning environment are outlined below.

2.1 Technology as a leveler across economic strata: Right to Education has been a big leap for education in India and has rightfully provided private school access to students from low-income backgrounds. However, due to asymmetrical technological access many teachers highlighted issues in bringing students to a common learning ground. Technology’s value proposition has been to bridge the access divide; however, using pedagogical tools such as flipped classroom in these cases is furthering this chasm. Few students in a class are often unable to access information beyond school hours, while others have access to contemporary supplementary resources.

To address this heterogeneity in classrooms, a proposed solution focused on leveraging the existing IT Lab infrastructure in schools and bolstering it with mentoring support. In post-school hours, the computer labs could become safe confines for students and other knowledge seekers to explore information and gain prowess over using technological tools for development. Since responsible access to internet is important, these labs could be supported by government-appointed mentors who guide students on becoming proficient in using vast sources of information to their benefit. Akin to Hole-in-the-Wall project undertaken by Prof. Saugata Mitra, this could be a game changer in fostering curiosity, self-reliance, and intuitiveness. To create equitable access to such infrastructure, National Education Policy could consider developing access points in school clusters.

2.2 Affordable, updated, and high-quality vernacular e-content: Schools in regions where English or Hindi are not predominant languages shared a severe challenge of limited availability of pedagogically sound contextual products and content. This affects students and teachers alike who lack access to vernacular training modules. While some enterprising teachers shared how they tried online translations to create content, they also expressed their inability to replicate the quality of original content, which further led to distracted students.

The hack suggested that ed-tech players should be encouraged and incentivized to create offerings in regional languages. The initial impetus could open

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SEL for SDGs: Why Social and Emotional Learning is necessary to achieve the Sustainable Development Goals (UNESCO MGIEP)

14 Empowering Teachers in the Digital Education Ecosystem

Empowering Teachers in the Digital Education Ecosystem
Empowering Teachers in the Digital Education Ecosystem

up a larger market which would create a win-win solution for all stakeholders involved. Many studies have shared the correlation between critical thinking and learning in mother-tongue. There are for-profit ed-tech providers who create such content. In such cases, state and local governments could support schools in creating subsidized access to such content. This could also be an avenue for regional teachers to contribute to content creation indigenously.

2.3 Prioritizing learning and access needs of people with disabilities and/ or special needs: Technology can create a level playing field for students and teachers who are impacted by any disability. While there have been many developments on this front, there is not enough material/structured training programs that can help teachers in this endeavor. There are three aspects to this: First, for teachers who work with differently abled students, there are not enough learning opportunities, including content, to keep abreast with pedagogical developments. Second, differently abled teachers who work with regular students are often not considered prominently when national training programs are constituted. This creates a rift in terms of access to quality content as well as stunts their professional development. Third, many schools have architectural barriers that hamper accessibility for students and teachers with any locomotive disability.

Procurement and deployment of assistive technologies and digital learning aids must be supported by the government to cater to students with learning disabilities as well as other special needs. Awareness of such mandates needs to be championed at national as well as state levels. With inclusion a business imperative across sectors, distinct budget allocations should be carved within Central and State education outlays to promote inclusion for teachers and students with any locomotive disability.

In a world of intertwined networks, learning is no longer a unilateral process. Many teachers are facing similar challenges and it could certainly help to curate common threads where teachers can learn from one another. This includes but is not limited to nuanced uses of technological solutions, addressing common growth and learning challenges, as well as leveraging locally relevant and crowd sourced content.

3.1 Regional Collaboration Network: To create a healthy exchange of ideas. Government, Industry, think tanks, as well as Civil Society Organizations are wading through similar challenges, there is an opportunity to create global, national, regional, and local collaboration networks which can foster a healthy exchange of ideas. Government, Industry, think tanks, as well as Civil Society Organizations should create avenues where teachers can collaborate with both international and national peers. The issues of vernacular content, customized learning journeys, capacity building are common across nations. Such collaborations can help us find globally relevant and regionally accepted solutions.

Virtual communities and online forums that enable teachers to share best practices and educational resources should be facilitated on a free or minimal subscription basis. Use of cloud-based platforms and teacher friendly mobile devices should be promoted to provide easy access to educational resources. Existing initiatives such as NISHTHA, DIKSHA, and SWAYAM should be leveraged to foster these dialogues. This will also provide an opportunity to create peer-rated content as well as recommendations. Such platforms will also help in administrative capacity building across schools.

For technology to have the desired impact in classrooms, it is important that our teachers are equipped to adequately use the available tools as part of their pedagogies and curriculums. However, the rapid speed with which technology continues to evolve often makes it difficult for teachers to keep abreast. This in turn breeds a sense of hesitancy towards adoption of technology leading to a situation where despite the availability of state-of-the-art tools, the desired learning outcomes are not achieved.

Customized training programs for teachers that are curated based on their subjects, their needs and their challenges are important to instil a sense of confidence amongst our teachers and encourage them to use technology effectively.

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RITU GUPTA
Director, Marketing, Dell Technologies

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RITU GUPTA
Director, Marketing, Dell Technologies
Region Wise Analysis

This report summarizes insights from top 50 PolicyHack entries and ensuing discussions between jury and participants. While all final participants are winners in their own right, this section highlights ideas that won accolades from jury and teachers alike.

NORTHERN REGION POLICYHACK

Held on 18 January 2019 in New Delhi

- On-the-Job Learning: Technology should be used to improve and standardize teacher trainings, including through online courses. Based on a SWOT analysis, schools must aim to provide teachers with pre-service and in-service training, with special emphasis on educating/empowering teachers towards the applications of modern-day ICT tools.

- Equalizing Learning for All: Teachers should employ ICT tools like audiobooks and text-to-speech applications to serve students with learning differences, disabilities, or low digital literacy skills to help equalize learning outcomes in the classroom. The government in collaboration with schools, should aim to create greater access to ICT tools by establishing tinkering labs and allowing access to computer labs beyond school hours. This will significantly enhance learning outcomes for students, especially from economically weaker sections who cannot afford access to technology beyond classrooms.

- Creating Customized Content: In addition to developing high-quality e-content at a state or local level, a universal platform should be developed to enable the sharing of online courses, games, and other e-learning content. Gamification and game based teaching aids should be used extensively to make the teaching and learning process more interactive. The content of MOOC courses should be continuously upgraded and features like interactive feedback, adaptive learning accreditation of courses by universities and provision of linking accomplishments to social media should be incorporated.

- Peer Learning: School administrators should promote seamless collaboration and peer-to-peer learning by encouraging teachers to attend conferences, participate in in-person teacher exchange programs, and engage with other educators on online chat forums. Emphasis must be placed on curating special online courses, as they allow teachers to learn at a flexible time & pace and provides a platform for teachers to interact with other teaching communities across the world. Cloud based virtual communities and online forums must be explored as a medium to allow teachers to share and absorb best practices and resources.

WINNING IDEAS

Government Boys Senior Secondary School

They showcased an innovative program, Project PRAYAS, to teach students about environmental conservation by using customized, technology-driven content. Leveraging functional tools like PowerPoint and video modules as well as platforms including YouTube, Instagram, and Google Plus, teachers provided standardized lesson plans on biodiversity and led a school-wide program to promote conservation of birds on campus. Teachers from Indraprastha International School, Dwarka shared how game-based teaching aids can make classrooms more interactive, build a culture of innovation, and enable teacher-student collaboration. The school has developed and adopted gamification as a medium to blend technology with moral values and development of 21st century skills. They showcased a game, based on the ‘Swachh Bharat Abhiyan’, that teaches students how to segregate different kinds of waste and at the same time educates them about different properties of matter.

Sarvodaya Kanya Vidyalaya, Yamuna Vihar

shared the third spot with Gyan Devi Salwan Public School. In order to help students better understand the importance of debate, teamwork and unity, Sarvodaya Kanya Vidyalaya’s teachers conducted a simulation of the electoral process followed by the Government of India, with students as the central actors. Gyan Devi Salwan Public School hacked the theme for equitable access and pitched their idea on providing vouchers for internet cafes and access to computer lab beyond school hours to help students access the internet.

LIST OF PARTICIPATING SCHOOLS

• On-the-Job Learning: Governments, schools, and administrators should place greater emphasis on capacity-building of teachers through the establishment of training centers and development of online teaching modules. Curriculums at teacher training institutions should have modules, in the form of short-term training programs, bridge courses and teacher-specific training programs that train teachers on how to maximize learning for students with disabilities or different learning needs, by leveraging technology. To avoid transmission loss and ensure effective use of the limited number of resources, use of ICT tools is recommended. Training modules should include a component that improves the vernacular skills of teachers.

• Equalizing Learning for All: Schools should seamlessly integrate technology into classrooms in order to remove learning barriers. This could include providing students with online curriculum through PowerPoint, games, and videos before they enter the classroom. Schools should also provide digital resource centers and online libraries, made possible through government funding or partnership with the private sector. Greater budgetary allocation should be provided towards helping schools in delivering assistive technologies, to meet the diverse learning requirements of specially abled students and in establishing digitally equipped resource centres. To support a child’s learning activities, teachers should be encouraged to hold regular workshops on how parents could use technology at home.

• Peer Learning: Schools should accelerate knowledge-sharing and peer-to-peer learning through videoconferencing and share content and e-learning curriculum using cloud-based platforms. To share key insights and evolving trends observed in classrooms, online modes of communication such as videoconferencing and seminars should be leveraged. The policy framework must include incentives that encourage teachers to participate in collaborative learning. Special emphasis should be placed on training teachers from rural areas on how to use cloud-based platforms and mobile applications.

WINNING IDEAS

Vidya Pratishan New English Medium School bagged the top honor at the Western Chapter. Their solution improved operational efficiency in schools by leveraging cloud to save and share files, including teacher curriculum, assignments, and student notes. The teachers shared their learning from using online applications to conduct
examinations and create and share feedback forms, which improved monitoring and evaluation as well as built teacher capacity to create online content.

Sadhna Primary Vidhyamandir, Hadapsar’s recommendations focused on using technology and tech-based platforms to provide students with access to appropriate educational content based on their age. The school also introduced the concept of using online polls to gauge learning outcomes, and the use of popular social media apps for easy dissemination of vernacular educational content.

The HDFC School, Pune, focused on bridging the digital divide by adopting the use of device set designed by Commonwealth Organization of Learning (COL) that allowed educators and learners to connect to digital learning platforms without the need for grid electricity and internet access.

LIST OF PARTICIPATING SCHOOLS

Vidya Pratishthan Indapur, Vikhe Patil Memorial School, Pune, Kilbil High School and Junior College / Teach For India, Kendriya Vidyalaya No 2 AFS, Pune, D Y Patil International School, Pune, New English School, Maan, Vidya Pratishthan’s New English Medium School Vidyanagari Baramati, Sadhna School, The HDFC School, Yashwant Vidyalaya, Khadakwasala

NORTHEASTERN REGION POLICY HACK

Held on 17 October 2019 in Guwahati

• On-the-Job Learning: Participants suggested that the strongest factor in determining technology adoption by teachers is adequate support and encouragement from institutions. School administrators and principals as well as local governments should adequately incentivize and promote the integration of digital technologies into classrooms and provide support — including technical support — to early adopters. The focus should be on designing multimedia modules, borderless training strategies and providing preservice and in-service ICT training for teachers with the help of ICT-based resource packages, designed by teachers under professional guidance and supervision. An evaluation system should be devised, in order to measure teachers’ performance in using digital applications.

• Creating Customized Content: Administrators should encourage the creation of unique, customized content by providing pedagogical support to teachers who choose to leverage digital technologies in the classroom.

• Peer Learning: Teachers should have an outlet with which to communicate with other teachers, share content, and contribute to a sense of shared vision in order to catalyze broad attitude changes and address existing skepticism of digital tools. Creative teachers using ICT tools to successfully impart education should be recognized with morale-boosting rewards and awards. District Institutes for Education and Training should initiate online platforms for sharing good teaching practices.

• Equalizing learning for all: A phased approach should be adopted for ensuring effectiveness of investment in ICT infrastructure in schools, taking into consideration the readiness of the schools to embrace digital tools in classrooms. Every school should set up e-library for their students and teachers to reduce reliance on textbooks.

WINNING IDEAS

Teachers from CMCL Vidya Bharati School, which stood as the best hack, proposed setting up of mobile digital classrooms in order to reach students in rural areas whose schools lack basic power and broadband infrastructure. These mobile classrooms, which could be housed in school buses, would travel to remote villages providing computer education to students who may otherwise be unable to access any digital technologies. The initiative could be funded through a public-private partnership and could build capacity among teachers across geographies and socioeconomic backgrounds.

Sankerdev Vidya Niketan teachers recommended the introduction of practical subjects focused on technical, non-technical, cultural, social, behavioral and spiritual development of students. The school focused on how to encourage students to adopt daily activities that promote greater adoption of technology and EQ in problem solving.

Bamunpukhuri High School hacked the idea to broadcast educational content over radio. The solution focused on tackling land connectivity issues in the Northeast and providing access to educational content for students who are unable to attend school regularly.

LIST OF PARTICIPATING SCHOOLS

CMCL Vidya Bharati School, Janaki Charan Higher Secondary School, Rabindra Vidhyapith M E School, Adarsha Vidyalaya Aloicherra, Bonai High School, Bamunpukhuri High School, Govt. V.M.H.S. School, Asian Academy, JaiKoari Girl’s High School, G. U. Model School
SOUTHERN REGION
POLICYHACK

Held on 9 December 2019 in Vishakhapatnam

• On-the-Job Learning: Schools should introduce incentives to encourage teachers to participate in trainings on ICT tools. Once a baseline level of digital literacy is reached, teachers should be encouraged to participate in online courses to improve curriculum development and familiarity with technology.

• Equalizing Learning for All: Technology should be used to promote high-quality, accessible, and standardized curriculum in the classroom. Teachers should introduce multimedia, online gamification tools, smart boards, and LCD screens in their traditional teaching methods. The government should support the funding and development of computer labs in schools and ensure that the requisite infrastructure—such as broadband and power access—is in place.

• Creating Customized Content: E-content should be tailored and available in local languages to ensure that unique student needs are met across the eastern region. Teachers should also deploy digital tools and applications to students with disabilities or learning differences to help them keep pace with the rest of the class while providing customized support.

• Peer Learning: The government should support the development of a single online platform for teachers to share resources and best practices. Schools could also make participation mandatory to ensure teacher participation.

WINNING IDEAS

The winning entry was pitched jointly by Government Boys Higher Secondary School, Tamil Nadu, and Hope Foundation. The team proposed the use of smart boards, assistive technology products, and customized descriptive audiovisual content to help visually challenged teachers effectively deliver lessons to students. The proposal included role of schools in facilitating in-house trainings for teachers on ICT programs.

AP Model School, from Vishakhapatnam, focused on conducting periodical e-literacy classes for parents, especially in rural regions, to promote learning beyond classrooms for students and setting up ICT enabled language labs to strengthen the communication skills of students and parents.

Delhi Public School, Bangalore (South) recommended curating continuous professional training program for teachers to sensitize them towards the diverse learning needs of different students. They shared how teacher training programs can be conducted leveraging common platforms and how government and industry can collaborate to create the necessary digital infrastructure for schools.

LIST OF PARTICIPATING SCHOOLS

Dear Educators,

The first half of 2020 pushed us to embrace learn from anywhere, work from anywhere, contribute from anywhere. Digital transformation was already one of the most important strategic directions for countries, governments, and organizations world over. The disruptions of last few months have accelerated these conversations and decisions.

Not all superheroes wear capes – and, the last few months have clearly showed us the superhuman ability you have. Through this note, I express my gratitude for all that you do. You have not only embraced remote teaching with an exemplary success, given the circumstances, but have also been an irreplaceable mentor to children. We acknowledge the challenges that many of you have faced: lack of adequate infrastructure, understanding how various online tools work, exploring how an online class can still carry the same vibe as an in-person class, and making sure that personalized attention is indeed given to every child.

However, we do understand that you are also anxious about what the future holds. While many experts have urged us to look at the ample opportunity this pandemic will throw, we also need to learn new things, adapt to new environment, and become more efficient in doing so in coming days.

For the education sector, I expect the short, medium, and long term to be realized in these phases:

- **Respond**: Adopt immediate relief measures to safeguard the student’s interest;
- **Recover**: Develop medium-term measures to activate transition and reforms; and
- **Reimagine**: Transform how we work, learn, heal, create, and play.

This report is a representation of various inputs we received from teachers and administrators across the country. And if you look closely, many of the concerns you’ve had are documented here along with potential solutions. Education touches so many lives that a group with a common vision must come together to pave the way forward.

The change starts with every single one of us. We, at Dell Technologies, are committed to helping you and the ecosystem in embracing a future where access to better technology can help drive human progress.

We hope that the policymakers read this report to explore suggestions from participants, i.e., not only the teachers but also the jury members. We hope that industry looks at this report to focus on various areas that teachers think are relevant for evolution of education. We hope social responsibility and civil society ecosystems use this report as an input into developing targeted programs. And, most importantly, we want you to see that no feedback is small.

Wishing you all the best,

P. Krishnakumar
SVP and General Manager, Consumer Business
Dell Technologies Asia Pacific and Japan