

Lenovo (Mainland China)

Championing Educational
Technologies to Enable Virtual
Learning Experiences Worldwide

January 2021



Extraordinary Endeavors in Turbulent Times: Asian Innovation, Inclusion, and Impact during COVID-19

A Joint Report by the Asia Business Council and the
Hong Kong University of Science and Technology

Other case studies in the series

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Recommitting to a Broad Stakeholder Eco-system during the Pandemic

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Yoma Group (Myanmar)

Accelerating Financial Inclusion in a Time of Social Distancing

Letter from the Directors

Dear Reader,

As the directors of this joint project by the Asia Business Council and the Hong Kong University of Science and Technology (HKUST), we are delighted to present the results of our study on the extraordinary endeavors of Asian companies in the turbulent times of COVID-19, as companies embrace innovation, promote inclusion, and drive social and economic impact across the region.

We hope that this series of eight case studies will illustrate the silver linings of the pandemic – in these trying times companies are more than ever realizing the importance of social responsibility, reimagining and reinventing traditional forms of philanthropy, and leveraging technology as a force for good in ways that will likely last well beyond the crisis.

While the articles are written with business leaders and business students in mind, the stories we tell have relevance for a wider audience as they show how Asian corporates took the lead in engaging a broad eco-system, including governments, academic institutions, religious groups, and the public health sector, in addition to start-ups, small and medium enterprises, and even competitor companies within the private sector.

True to the times of COVID-19, the smooth collaboration between our two organizations took place without any face-to-face meetings; all the research and interviews were conducted virtually and across multiple time zones. We are especially grateful to Asia Business Council Chairman Lim Boon Heng and Vice-chairman Daniel Tsai whose companies Temasek and Fubon Group were the first two companies to take part in the study. We would also like to thank the unfailing support of Mark Clifford, Executive Director of the Asia Business Council, and Roger King, Senior Advisor and Founding Director of the Tanoto Center at HKUST, without whom we could not have completed the project.

Amidst the continued risk and uncertainty surrounding the pandemic, we hope that this report will contribute to the ongoing discussions on stakeholder capitalism and the debates on the role of companies in the local and international community, in times of crisis as well as times of relative normalcy. Above all, we hope that you will enjoy reading the articles as much as we enjoyed writing them, and that the report will be a source of positivity and inspiration for audiences around the world.



Winnie Peng

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Lenovo (Mainland China) Championing Educational Technologies to Enable Virtual Learning Experiences Worldwide

By Winnie Peng, Pauline Yeung, Colleen Howe, and Theodore Chow

Lenovo Group

Region

China

Year of Founding

1984

Headquarters

Operational Headquarters in Beijing and Morrisville; Financial Headquarters in Hong Kong

Type of Company

Listed Multinational Company

Number of Employees

63,000

Total Revenues in FY2019/20 (USD)

50,716 million

Major Businesses

Computer Hardware, Electronics, Smart Devices, Data Center, Services

COVID-19 Initiatives in a Nutshell

Provided Advanced Education Solutions to Students and Schools to Facilitate Learn-from-home Access, both on a Charitable and a Commercial basis; Provided Equipment and IT Infrastructure to Hospitals; Matched Employee Donations to Support Community Needs

The following case study is based on written correspondence with Lenovo in November and December 2020, and an interview with Rich Henderson, Director of Global Education Solutions at Lenovo, on December 3, 2020.

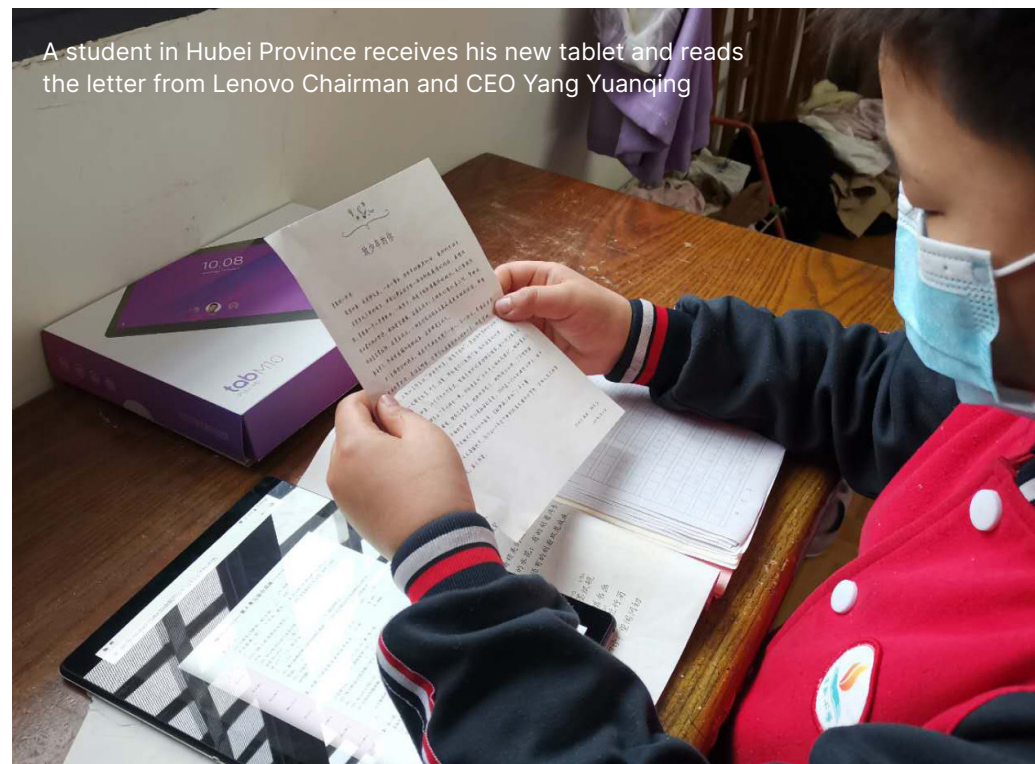
Introduction

“As your elder friend, I would like to support your efforts in this battle,” wrote Lenovo Chairman and CEO Yang Yuanqing in March 2020, in a letter to students from impoverished families in Hubei Province in China.¹ Placed in a gift package with a Lenovo tablet and a three-month data card of 90 gigabytes, Yang’s letter said, “I hope that these tablets help you all. No matter where you are, you can connect to the online knowledge library, browse encyclopedias, take classes virtually, and interact with teachers.”²

Initiated during the pandemic, this public welfare project was called “Lenovo E-classroom” and was supported by a donation of \$1.4 million personally funded by Yang. It also represented an attempt to tackle the “digital divide” in China, where students from underprivileged backgrounds do not have access to virtual learning, an issue that has only become more important because of COVID-19.³ As one of Lenovo’s major initiatives in China in 2020, the project was jointly sponsored by Lenovo Foundation China and the China Foundation for Poverty Alleviation and reached children in 2,375 families in Hubei.⁴

Lenovo’s philanthropic endeavors during the pandemic touched nearly every part of the world. In North America, Lenovo’s efforts included \$2.4 million in hardware donations to support distance learning education.⁵ In Europe, as Italy became hard hit by the crisis, Lenovo partnered with Microsoft to donate 190 laptops to students most in need in schools in Milan.⁶ In the Netherlands, Lenovo donated laptops to enable refugee university students to learn from home.⁷ Lenovo also had numerous

initiatives in Latin America. For example, the company contributed to distance education for LGBTQ+ middle school students in Argentina.⁸



Addressing Systemic Problems in Education in India

But Lenovo also went beyond hardware donations to address systemic problems in education that were exacerbated by the pandemic. In April 2020, Lenovo launched SmarterEd, a free online student-teacher matching platform, in collaboration with eVidyaloka, to tackle the estimated shortage of 1 million teachers in India due to lack of access to technology.

eVidyaloka is a Bangalore-based educational non-profit (“vidya” means education and “loka” refers to human connections), which was founded in 2011 with the goal of providing education to Indian students living in remote communities. Within the first four months of launching the SmarterEd platform, the initiative was able to electronically recruit over 11,000 volunteer teachers from 654 cities and almost 15,000 students from 571 cities.

The innovative aspect of SmarterEd was the use of smart technology via algorithms and an online questionnaire on learning and teaching styles to facilitate matching between students and teachers. The platform also caters to learners from across the country by supporting multiple languages used in India, from English to Hindi, Malayalam, Tamil, Kannada, and Telugu.

In a recent report, UNESCO identified South Asia as one of the regions where students are at highest risk for not returning to school following school closures.⁹ The

report also suggested online educational platforms and flexible enrollment as strategies that can reduce the risk that students will drop out of school permanently.¹⁰

Lenovo believes the SmarterEd platform could be a model for other emerging economies across the globe and potentially nations like the United States, where teacher shortages are arising because of the public health crisis and concerns around teaching in person.



SmarterEd is a student-teacher matching platform that helps resolve the shortage of teachers in India

Educational Technologies to Enable Virtual Learning

While Lenovo's philanthropic response to the pandemic has been admirable, the company's business response to the crisis has also been notable. COVID-19 has been a commercial opportunity for Lenovo, as education, business, and social life around the world has increasingly come to revolve around the digital devices that Lenovo and other technology companies provide. As an indicator, Lenovo's overall revenues rose by 7 percent to \$27.9 billion in the six months ended September 30, 2020.¹¹

Although Lenovo had already been focused on educational technologies in the past five years, the pandemic acted as an inflection point. The shift from classroom to online learning became an impetus for the company to put its emerging solutions into practice. While Lenovo has approximately 800 employees globally working in various education-focused teams, it is a team led by Rich Henderson, Director of Global Education Solutions, based in North Carolina, that is responsible for "looking beyond the device" to come up with educational solutions.

Having started his career as a classroom teacher working with autistic and special needs students, Henderson is passionate about the difference Lenovo can make in the education sector. The priority during the pandemic was to re-create the classroom experience in a virtual setting.

In October 2020, Lenovo launched its Hybrid Classroom solution to cater for distance learning and hybrid learning scenarios. Importantly, hybrid learning allows students in remote locations to join classes from “master teachers” at top educational institutions and get access to professors they otherwise would not have been able to meet, albeit virtually.

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As Henderson explained, “In some scenarios, especially in higher education, there is a model called Hyflex. There is a physical instructor and some students in the room, but other students are connecting remotely.” For this solution, Lenovo worked with its alliance partners Zoom, Google Meet, or Microsoft Teams to provide a collaborative offering – while there is a videoconferencing component there are also tools to share content and work.

Lenovo leverages its global footprint to roll out new resolutions, like its Smart Classroom solution in the Philippines, after a successful rollout in the China market. Students connect to the Smart Classroom through tablets, and the teacher provides content to the students through Lenovo Cloud. They can also use smart features like a digital whiteboard and interactive quizzes.¹² As this solution is an end-to-end teaching and learning offering, Henderson sees the potential to introduce it in other emerging markets like the Middle East and Latin America, where there are currently large tablet rollouts that could benefit from being paired with this device management and teaching offering.

Enhancing Virtual Reality Offerings

One educational technology solution that Lenovo has been focused on during the pandemic is virtual reality, which it has been developing since 2018. In May 2020, Lenovo introduced its VR Classroom 2, an updated version of its previous solution.

While he acknowledges that the adoption rate of VR remains low relative to other technologies, Henderson believes that the pandemic has brought out several key benefits of VR. Since the pandemic limits face-to-face interactions in daily lives, people have come to appreciate the importance of presence that VR can bring. The ability to chat with people in a more immersive way, where avatars express the movement of someone’s head and hands, can bring people closer together than interacting on flat screens.

More importantly, in these unusual times of social distancing, the VR classroom aims to immerse students directly into the material they are learning. “During a time of restricted travel because of COVID-19, VR has given students access to places and spaces that would otherwise be unavailable to them. These could be travel destinations like the Taj Mahal, foreign settings and wildlife environments, or specialized training environments such as scientific laboratories. With VR, people can be transported to these places, broadening their horizons and deepening their skills,” explained Henderson.

“VR can improve empathy by putting the students in the shoes of someone from another culture or another time. Students can practice challenging situations and difficult conversations in VR... This allows students to take someone else’s perspective and practice emotionally challenging situations in a safe way where it is okay to fail and try again.”

Of course, VR is also a particularly effective way to engage and spark curiosity among students through experiences that cannot take place in person – with or without COVID-19. For example, a recent Baltimore Public Schools field trip took place inside the human digestive track.¹³

In general, VR is also seen to help improve students’ interpersonal skills. In the words of Henderson, “VR can improve empathy by putting the students in the shoes of someone from another culture or another time. Students can practice challenging situations and difficult conversations in VR by playing the role of a social worker visiting a troubled home, a store clerk facing hostile customers, or by simulating the experience of someone with autism. This

allows students to take someone else’s perspective and practice emotionally challenging situations in a safe way where it is okay to fail and try again.” For students with special needs, schools have also used soothing VR environments to help students relax and learn how to control their emotions instead of lashing out or taking medicine to calm themselves down.

Stepping up Cybersecurity Measures during the Pandemic

Across its virtual classroom offerings, a key focus for Lenovo during the pandemic has been to enhance cybersecurity. Henderson noted that education is a high-risk area for cyberattacks and that cybersecurity becomes more complicated in an online learning environment. There are increasing security risks when students are in remote locations instead of the physical school building – students are often using devices that store their personal information but are not equipped with cybersecurity protections.

Apart from cyberattacks, another concern is content filtering, something that is also increasingly difficult to manage in a remote learning environment where school networks are unable to control incoming traffic to student devices. To address this problem, Lenovo developed a number of tools to prevent students from accessing certain types of content and to alert the school if they are searching for harmful information. For example, Lenovo’s classroom

management software LanSchool is equipped with thumbnail monitoring so teachers can keep an eye on what students are viewing on their screens.¹⁴

According to Henderson, school administrators were less aware of cybersecurity issues before the pandemic. “Before it felt like this was an offering that we were talking to schools about, but there was not a lot of interest. Schools didn’t have a lot of room to add this in the budget.” But since the shift to online learning and a number of well-publicized cybersecurity breaches in educational institutions, school administrators started to see the value in Lenovo’s offerings. “Instead of pushing this solution into the market, it was a pull.”

Esports as a Safe Form of Extra-curricular Activity during COVID-19

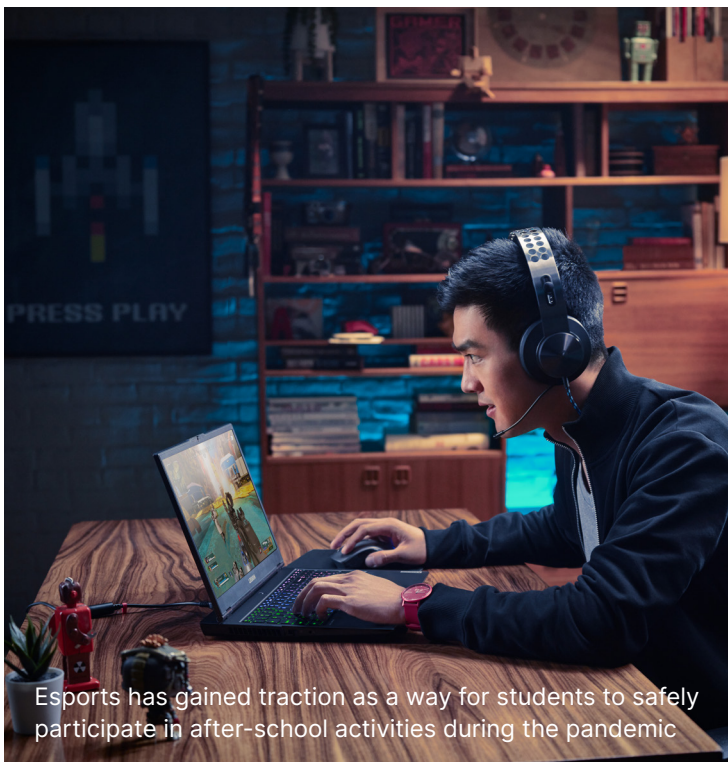
In a time of social distancing when extra-curricular learning is perhaps even more difficult to maintain than classroom learning, esports has gained traction as a way for students to safely participate in after-school activities and be connected with classmates during the pandemic.

“This has been a huge area of concern for educators,” Henderson said. They are asking, “How do I stay connected and keep students healthy both emotionally and socially?” North America has led the surge in interest in esports during the pandemic, but the trend is also growing in Europe, the Middle East and Africa, Australia and New Zealand, and parts of the Asia-Pacific region including Taiwan.

The Lenovo Esports Solutions for Education provides the gaming equipment, tower devices, and mobile devices for esports. It allows students to “play from home with matchups and leaderboards to spur competition”

and comes with “network and league management capabilities to maintain and optimize the experience for esports student athletes.”¹⁵

Lenovo began investing in esports just before the pandemic. Henderson referred to research that shows how students involved in esports are more likely to pursue careers in STEM (science, technology, engineering, and mathematics), an area where the U.S. faces a dearth of qualified graduates. Henderson also emphasized the other benefits of esports, such as the development of communication and team management skills.



Esports has gained traction as a way for students to safely participate in after-school activities during the pandemic

As an example, in a school in Colorado, the esports program gave some students motivation to do well in school, because they had to meet certain academic requirements to be on the team, which in turn helped them make friends and enhanced their social lives.

Of course, not everyone will see video games as a relevant academic experience. But Lenovo is working to integrate esports with academics, taking steps such as introducing software that monitors the amount of time available for students to engage in esports, which in turn is determined by whether they have completed their schoolwork.

Future Outlook

In the aftermath of the pandemic, which has disrupted education for millions of students and teachers around the world, we may see the emergence of a reshaped educational system where geographical barriers will be less of an obstacle and technology will play a bigger role in facilitating learning processes and measuring learning outcomes.

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In the long run, Henderson sees potential for educational technologies to help construct a “more holistic view” of students’ education journeys that goes beyond standardized tests. Amidst the industry shift from more formal testing to informal assessment, Lenovo can help teachers better gauge students’ study skills and social and emotional development. For example, Lenovo’s educational solutions can provide more checkpoints on students’ progress by allowing teachers to see not only whether their students handed in their homework but also how long they spent completing their homework, as well as whether and how students are interacting with other classmates.

In the United States, Lenovo has partnered with classroom platform Exploros which provides a learning system based on social interaction. While students in a typical classroom setting may only have a few interactions during a 45-minute lesson, the Exploros software can generate interaction through polls and student input such that there are an average 17 interactions per student in the same timeframe. Students can also see what their peers have said and interact with them. This allows for more interaction by students compared to a traditional class where they simply listen to lectures.

Conclusion

It is important to recognize that the accelerated shift to virtual learning because of the pandemic also presents significant challenges, in addition to the numerous opportunities mentioned above. Many students have had less than positive experiences with virtual learning. Some students are less engaged when connecting from their homes, and others have reported problems ranging from physical ailments to isolation and depression. Moreover, remote learning still requires technology, and even teacher-student matching platforms like SmarterEd are only available to those already equipped with the necessary devices and internet connections.

Indeed, perhaps the defining challenge for the educational technology sector will be to address the “digital divide” and mitigate the impact of virtual learning on wealth disparities. Speaking of this challenge, Henderson said, “Now, globally, we’ve seen a desire to supply every student with a device. This has been a huge challenge for the entire supply chain. There has been an explosion of demand that has caused longer lead times than we have seen historically. We are setting up new manufacturing lines and qualifying new suppliers. Through these efforts we are working to ensure that every student can have his or her own device.” This suggests that, just as Lenovo is applying cutting-edge technology with VR, cybersecurity, and esports to reinvent education for the future, there will still be a place for traditional forms of philanthropy, such as Yang’s donation of tablets to underprivileged children in Hubei, which could serve as a life-transforming present for the very students who would benefit most from the gift of technology.

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