

# Where is Education Heading in 2023 and Beyond? Insights from Europe and Southeast Asia

*Michael Klemm, Selena Huynh and Suzette Barajas*

## INTRODUCTION

The education sector is at the crossroads of major changes and disruptions. And the question is not anymore: Will there be drastic changes? Will we see more technology in education? Will the students have more options to study and learn?

The question has moved beyond the “if” and we are now elaborating and ascertaining where the biggest change will take place and the impact on students, learners, institutions, corporates and governments.

The education sector has faced tremendous challenges during the COVID-19 pandemic and this laid bare some long-standing unresolved issues within education systems and education institutions. Accordingly, on a positive note, a new understanding and desire to address those issues has given life to new initiatives, new approaches and new investments. All of which should result in a transformation of education and an improved education system to a scale that we have not experienced for years, possibly decades.

This article attempts to share some insights into past and current challenges within the education system. It also suggests and predicts new models and ideas to move forward to in order to achieve what all educators aim for: better skilled and happy students.

## IMPACT OF SCHOOL CLOSURES ON STUDENT LEARNING

In light of the COVID-19 pandemic, European and Asian countries encountered new obstacles in the education sector. Schools and institutions in each country had varying levels of preparedness for the unpredictable nature of the crisis. The resulting

closure of many schools put a pause on student learning in the physical classroom and brought about a digital transformation of education.

School closures severely impacted student learning as some schools remained closed for extensive periods. Following the closures, schools began to pursue some form of distance or hybrid learning. Implementing distance learning, however, is not easily achievable for all populations. In order for schools to utilise digital platforms for instruction and learning, teachers and students would require access to computing devices and the internet. Countries with less access to reliable digital infrastructure were thus at a larger disadvantage.

In addition, teachers and students alike have to adjust their perceptions of how a learning environment should look like and how to best utilise new available tools and infrastructure. Skills and knowledge in terms of pedagogy, classroom management and engagement, data management, and data security are some of the most important areas for teachers to learn and to improve their competence levels in.

Many developing countries were overwhelmed in handling a sudden switch to remote learning, especially with the governments focused on addressing urgent health and economic implications. In Southeast Asia, Indonesia experienced peak levels of poverty in September 2020<sup>1</sup> at a record 10.2 per cent, with three out of four households experiencing a reduction in income<sup>2</sup>. Lack of access to the internet, electronic devices, and even electricity prevented many families from providing more support for their children's education. Parents were forced to shift their focus towards other obligations to support the family<sup>3</sup>. Indonesia's government response nonetheless consisted of obtaining partnerships with education technology (EdTech) companies to provide free access to online learning platforms. The government additionally partnered with telecoms operators to provide free internet quotas for teachers and students<sup>4</sup>. Other actions to support education included broadcasting school lessons on television to further student education<sup>5</sup>.

---

1. ([https://databankfiles.worldbank.org/data/download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/current/Global\\_POVEQ\\_IDN.pdf](https://databankfiles.worldbank.org/data/download/poverty/987B9C90-CB9F-4D93-AE8C-750588BF00QA/current/Global_POVEQ_IDN.pdf)).

2. (<https://www.unicef.org/indonesia/press-releases/80-million-children-indonesia-face-widespread-impact-covid-19-pandemic>).

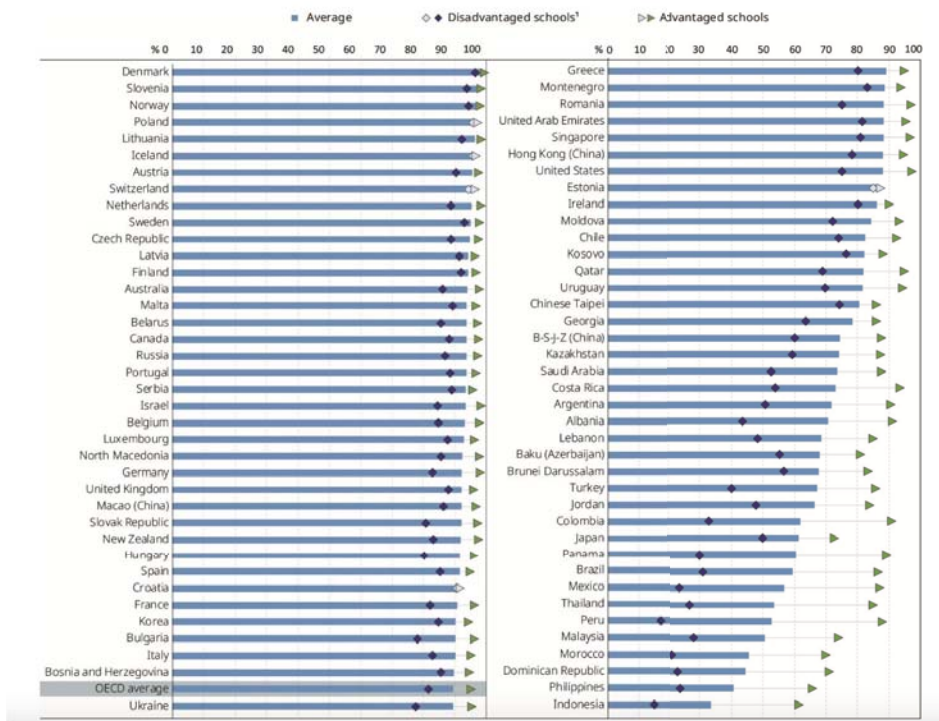
3. (<https://www.unicef.org/indonesia/education-and-adolescents/coronavirus/stories/learning-home-during-covid-19-pandemic>).

4. (<https://www.unicef.org/indonesia/education-and-adolescents/coronavirus/stories/learning-home-during-covid-19-pandemic>).

5. (<https://www.unicef.org/indonesia/education-and-adolescents/coronavirus/stories/learning-home-during-covid-19-pandemic>).

## Access to a Computer for School work<sup>6</sup>

Percentage of students that have access to a computer they can use for schoolwork, PISA 2018



Meanwhile, in Europe, for instance, schools in France and Germany were better equipped with digital infrastructure, making them well prepared to adapt to a hybrid learning system. PISA in 2018 measured that 91-92 per cent of all students in France and Germany possessed a computer to use for school, and around 80 per cent of students from the lower quartile of socio-economic profiles possessed a computer to use for school<sup>7,8</sup>. Approximately 90 per cent of the student population in these countries also had access to a quiet place to study<sup>9,10</sup>. Students in France and Germany were able to have an advantage in possessing a fair amount of digital

6. (<https://www.oecd.org/coronavirus/policy-responses/learning-remotely-when-schools-close-how-well-are-students-and-schools-prepared-insights-from-pisa-3bfd1f7/#figure-d1e74>).

7. (<https://www.oecd.org/education/France-coronavirus-education-country-note.pdf>).

8. (<https://www.oecd.org/education/Germany-coronavirus-education-country-note.pdf>).

9. (<https://www.oecd.org/education/France-coronavirus-education-country-note.pdf>).

10. (<https://www.oecd.org/education/Germany-coronavirus-education-country-note.pdf>).

resources prior to the pandemic, allowing for an easier transition to digital learning as the crisis struck.

Likewise, in Singapore, about 89 per cent of households had computer access, and about 98 per cent of households with school-going children had computer access at home in 2019. Especially for households with school-age children, internet and broadband access rates were both near 100 per cent<sup>11</sup>. The Ministry of Education (MOE) of Singapore still addressed resource concerns by loaning out 20,000 computing devices and 1,600 internet-enabling devices<sup>12</sup> to students.

Although Singapore evidently has more available digital infrastructure to prevent student learning loss, as the education sector continues to transform and implement new technologies, new standards for the quality of education are becoming necessary to match today's continuously developing education scene. Providing students with more access is a starting point to increasing opportunities in education, but is it enough to sustain and ensure the quality of education? What will become of the abundance of technology, and how will teachers and students navigate through this digital scene? More research and investment must be made to adequately implement these digital tools and platforms into remote and hybrid learning, and only then can education be sustainably transformed in an era of continuous digitalisation.

## DIGITAL TRANSFORMATION OF EDUCATION

Since COVID-19 was an unforeseen circumstance that affected many students globally, there has been a new focus for educational goals. The new goal is to ensure universal access across all audiences. A way to achieve this is through a diverse set of tools that can be accessible to everyone so as to establish equitable access within the education system.

In Southeast Asian countries, the pandemic highlighted gaps throughout their education systems that were already affecting the 35 million children who were out-of-school<sup>13</sup>. A method that some Asian countries have established is to set up access across new and old technologies. So far, Asia has the highest usage of televi-

---

11. ([https://www.imda.gov.sg/-/media/Imda/Files/Infocomm-Media-Landscape/Research-and-Statistics/Survey-Report/2019-HH-Public-Report\\_09032020.pdf](https://www.imda.gov.sg/-/media/Imda/Files/Infocomm-Media-Landscape/Research-and-Statistics/Survey-Report/2019-HH-Public-Report_09032020.pdf)).

12. (<https://www.todayonline.com/commentary/tackling-3-obstacles-digital-transformation-education>).

13. (<https://uk.bettshow.com/white-paper-education-for-the-future>).

sion learning and the second-highest in radio<sup>14</sup>. However, Europe has the highest usage in online learning while not emphasising older technologies such as radio or television like Asia<sup>15</sup>. Focusing on one area of education places a disadvantage on users who lack access to modern technology, which is why it is essential to diversify for all audiences.

COVID-19 has also emphasised the importance of EdTech in modern society. Most EdTech products in Southeast Asia involve online video learning and tutoring, such as gamified learning, AI-powered apps, classroom management portals, and education immersive software. Tutoring platforms like Byju's (India)<sup>16</sup> or Ruangguru (Indonesia)<sup>17</sup> became household names in the education space, having raised large funds from investors with the promise to establish online learning as a credible and popular alternative to traditional education.

The chart below shows how investment in education technology ballooned in the last decade. We have experienced a significant increase during the COVID-19 pandemic, which accelerated online learning and addressed the general misperception of many technological advancements in education based on digital tools and platforms.

While a drop in investment activities post-pandemic is likely to happen, this does not change the fact that the EdTech industry has left behind its reputation as an insignificant industry player as far as investment but also educational impact are concerned.

The drastic drop in EdTech investment in the People's Republic of China (PRC) is due to the fact that the PRC government implemented drastic policies and rules restricting children's access to online education tools and platforms. This has significantly undermined the business models and growth prospects of some very large online education companies operating in the PRC.<sup>18</sup>

---

14. (<https://uk.bettshow.com/white-paper-education-for-the-future>).

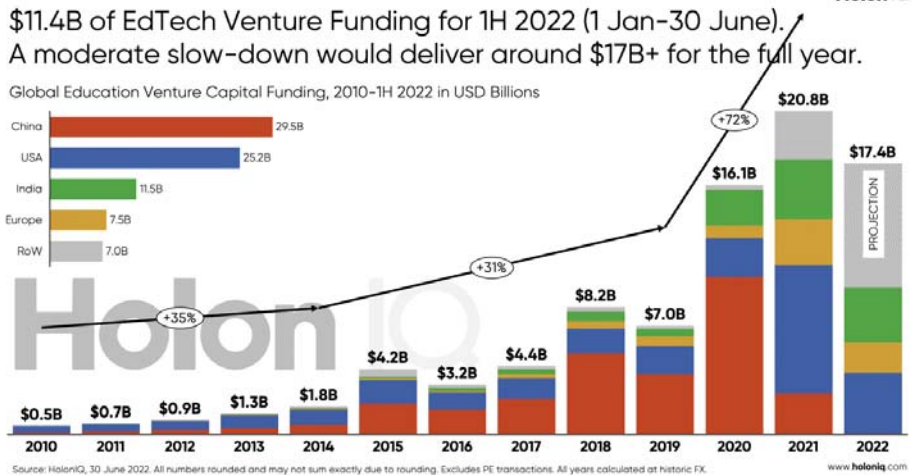
15. ([https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg\\_policy\\_brief\\_covid-19\\_and\\_education\\_august\\_2020.pdf](https://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf)).

16. (<https://www.forbes.com/sites/anuraghunathan/2021/10/06/byjus-founder-is-on-a-buying-spree-to-keep-his-edtech-company-best-in-class/?sh=1fc6727761aa>).

17. (<https://www.businesstimes.com.sg/companies-markets/green-business/offering-access-to-education-and-a-ticket-to-a-better-life>).

18. (<https://www.scmp.com/tech/policy/article/3155447/china-reiterates-ban-online-and-offline-advertising-campus-tutoring-it>).

HOLONIQ: GLOBAL IMPACT INTELLIGENCE



Europe's EdTech industry had been developing pre-COVID-19 but as in most other regions, school closures and other restrictions on the education sector brought new life and funding into the EdTech industry. This is poised to continue with a new understanding that digital tools in the classroom are here to stay and make learning more individualised, accessible and transferable. For example, both Germany and France invested a large share in EdTech startups as their focus revolved around smart classrooms<sup>19</sup>.

In Southeast Asia, there has been an increase of Massive Open Online Courses in Indonesia, led by a programme called Prakerja<sup>20</sup>. Prakerja utilises cash incentives to upskill or reskill unemployed people through "online courses from platform partners"<sup>21</sup>. Alternatively, in Europe there has been an emphasis on digital certification that is both convenient and flexible so as to incentivise lifelong learning<sup>22</sup>. An example of digital certification includes micro-credentials, which target a wide range of people through short-term courses to promote personal or professional

19. (<https://www.businesswire.com/news/home/20210303005431/en/Europe-EdTech-and-Smart-Classroom-Market-Forecast-to-2027-Coming-Together-of-Latest-Technologies-for-Enhanced-Learning---ResearchAndMarkets.com>).

20. (<http://review.insignia.vc/2021/01/26/7-insights-into-southeast-asias-edtech-boom-in-2021-a-venture-capital-perspective/>).

21. (<http://review.insignia.vc/2021/01/26/7-insights-into-southeast-asias-edtech-boom-in-2021-a-venture-capital-perspective/>).

22. (<https://education.ec.europa.eu/education-levels/higher-education/micro-credentials>).

development. These can include both public and private platforms that can be easily accessible online.

On the downside, the increase of digital transformations in education brings about more risks of cyberattacks. In 2019, Maastricht University in the Netherlands suffered a ransomware attack, and had to pay out 220,000 euros to recover from a network-wide shutdown that affected both students and instructors<sup>23</sup>. These attacks have increased as universities can be perceived as soft targets since they may not be as well monitored as healthcare and financial services<sup>24</sup>. There is more at risk with universities than K-12 institutions due to the amount of personal information stored within their systems as well as the fact that most higher education platforms are online. While digitisation may be the best approach for flexibility and accessibility in higher education, there needs to be an increase in monitoring applications and anti-malware software in place to protect both students and instructors. As the topic of data access, management and security becomes more important, governments and organisations are trying to set standards and certifications for users and institutions to better evaluate digital education too. Dxtera Institute<sup>25</sup> and IEEE<sup>26</sup> are two examples of established organisations offering knowledge, standards and certifications in this context.

Digital transformation can revolutionise education systems across the entire world. With the development of digital infrastructure through public and private investments, we can create an efficient change in education systems. However, efforts to implement this change needs to be gradual, measured and with the inputs as well as ownership of teachers and students. If teachers are not able to execute digital transformation in an effective manner then there is little chance of success in the digital transformation of education. It is essential that teacher training should emphasise information and communications technology (ICT) skills within the classroom to create the most effective educational experience for students.

---

23. (<https://portswigger.net/daily-swig/ransomware-attack-maastricht-university-pays-out-220-000-to-cybercrooks>).

24. (<https://www.insidehighered.com/news/2022/07/22/ransomware-attacks-against-higher-ed-increase>).

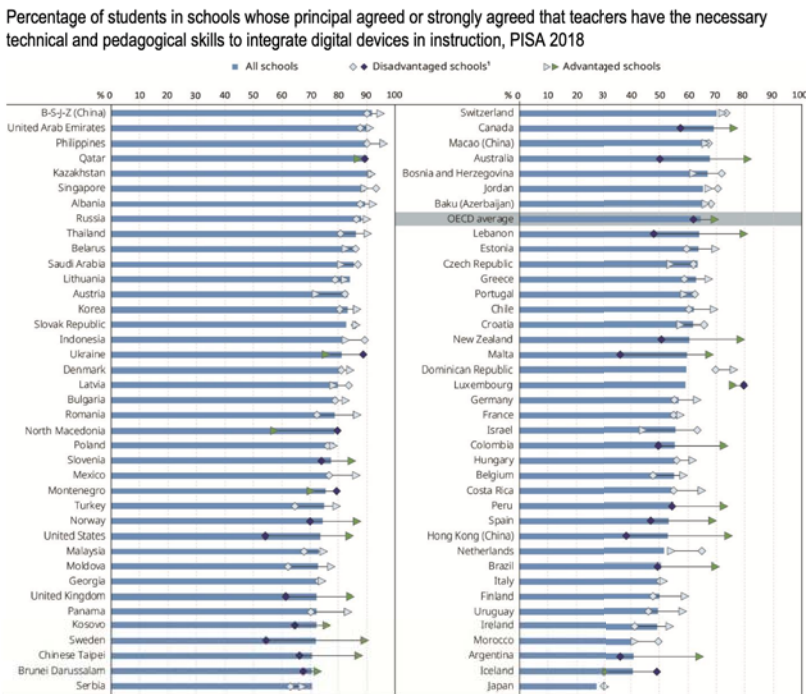
25. (<https://dxtera.org/>).

26. (<https://sagroups.ieee.org/1484-2/subscribe-to-email-list/>).

## EDUCATION QUALITY AND TEACHER TRAINING

The quality of teaching and learning is often difficult to measure and quantify. However, with new approaches to education and an emerging focus on digital education, there is a need for improved quality, inclusiveness, and sustainability in educational systems<sup>27</sup>. Supplying students and teachers with access to digital infrastructure is the first step to providing more equal opportunities in education. The availability of digital tools allows instruction to proceed not only during times of limited physical interaction, but also during a period where technology is transforming the learning experience into a more connective, adaptive, and holistic one<sup>28</sup>.

### Teachers have the necessary technical and pedagogical skills to integrate digital devices in instruction.<sup>29</sup>



27. (<https://edtpartners.com/report-the-future-of-higher-education/>).

28. (<https://edtpartners.com/report-the-future-of-higher-education/>).

29. <https://www.oecd.org/coronavirus/policy-responses/learning-remotely-when-schools-close-how-well-are-students-and-schools-prepared-insights-from-pisa-3bfd1f7/#figure-d1e207>



For digital learning to be effective, both teachers and students must understand how to use these platforms and become adequately familiar with them<sup>30</sup>.

Improving the quality of teaching is dependent on improving the training criteria and effectiveness for teachers. Teachers must learn how to use and implement digital technologies into the classroom to make remote lessons fully effective as well as use other pedagogical approaches and tools for learning purposes. The 2018 TALIS survey showed that only 51 per cent of teachers in France among a 56 per cent average of teachers in OECD countries had the use of ICT for teaching included in their educational training<sup>31</sup>. The survey also reported that 45 per cent of teachers in France feel they can support student learning through the use of digital technology by “quite a bit” or “a lot”<sup>32</sup>. With only half of teachers in these countries being experienced in ICT, there must be inconsistencies in the learning quality for students, and there must be a push to reduce these learning inequalities. Policymakers must emphasise recruiting, developing, and retaining a stronger workforce of educators so that both teachers and students can experience a quality hybrid-learning experience<sup>33</sup>.

Similarly, in Indonesia, one of the nation’s most significant challenges in education is also improving education quality and assuring the quality of teachers<sup>34</sup>. In 2022, only 40 per cent of the 2.9 million Indonesian teachers are digitally literate<sup>35</sup>. The rise of the digital era emphasises the importance of using technology and the internet to explore educational and knowledge resources, as well as to expand opportunities for the learning process in and beyond the classroom<sup>36</sup>. Having these opportunities come about will require better development of the content in online learning, better design of online exams, and the appropriate application of interactive online learning platforms<sup>37</sup>. Education stakeholders and policymakers need to focus on what the future of education holds by taking steps to better prepare teachers and students for this digital age.

---

30. (<https://www.oecd.org/education/Germany-coronavirus-education-country-note.pdf>).

31. (<https://www.oecd.org/education/France-coronavirus-education-country-note.pdf>).

32. (<https://www.oecd.org/education/Germany-coronavirus-education-country-note.pdf>).

33. (<https://www.tandfonline.com/doi/full/10.1080/02619768.2020.1816961>).

34. (<https://files.eric.ed.gov/fulltext/EJ1281576.pdf>).

35. KASpaces Workshop. 2022. Umar Abdullah, Indonesian Government Policy in developing infrastructure.

36. (<https://files.eric.ed.gov/fulltext/EJ1281576.pdf>).

37. KASpaces Workshop. 2022. Umar Abdullah, Indonesian Government Policy in developing infrastructure.

The private sector has jumped into the space of teacher training, which has been identified as one of the critical missing links between education and utilisation of digital tools. In Southeast Asia, teacher-training portal and community “Akadasia” is one of those organisations on the forefront of pushing boundaries in improving teacher capabilities and offering no-cost or low-cost teacher training.<sup>38</sup>

## DIGITAL INFRASTRUCTURE

Over the past decade, many countries have decreased their government expenditures as a percentage of total GDP on education, which indicates a common challenge with funding for education. For Germany and France, the education sector is one of the lowest funded sections of their respective public sectors in 2021 according to the OECD<sup>39</sup>. The education sector in Singapore is the third highest government expenditure placing it just above Germany and France in 2019<sup>40</sup>.

In France, the percentage of total GDP spent on education has been decreasing since 2010, from 5.75 per cent to 5.4 per cent in 2018<sup>41</sup>. Unlike Singapore, Germany's government expenditure on education has been fluctuating at a higher percentage than its Southeast Asian counterparts. Germany's public spending on education has been hovering between 4.8 per cent and 5 per cent over the last decade<sup>42</sup>, while France has been decreasing its government spending on education as a percentage of its GDP, still placing them significantly above Singapore.

---

38. (<https://akadasia.com/>).

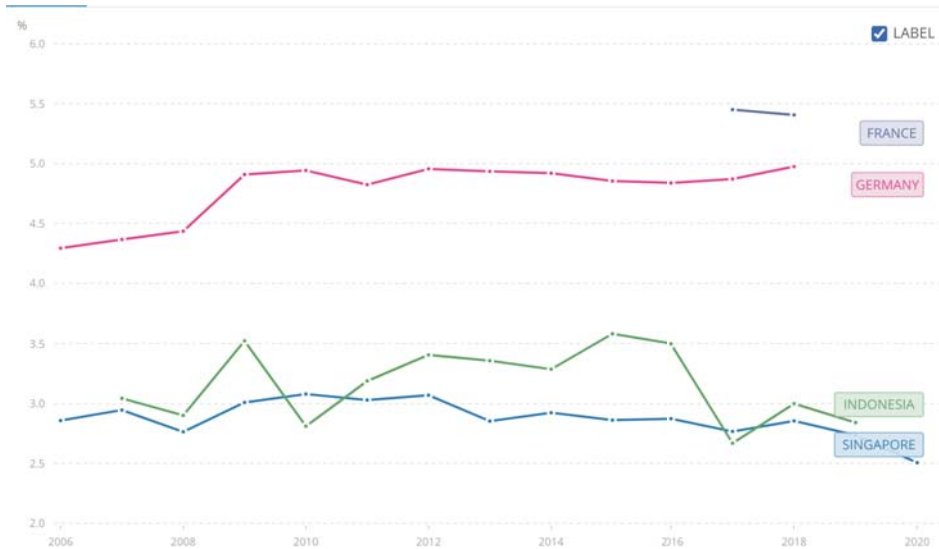
39. (<https://www.oecd.org/gov/gov-at-a-glance-2021-germany.pdf>).

40. (<https://www.mof.gov.sg/policies/fiscal>).

41. (<https://tradingeconomics.com/france/public-spending-on-education-total-percent-of-gdp-wb-data.html>).

42. (<https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS?locations=DE>).

## Government expenditure on education.<sup>43</sup>



Western European countries like Germany and France have higher government expenditures on education compared to most countries, including Southeast Asian countries. However, the distribution of these funds may vary from country to country and is not a clear indicator of the quality of education. A lower percentage might not necessarily affect the quality of infrastructure within the education system if they are either privately funded or if households bear the majority of the cost.

The role of the private sector in education is more prominent within Southeast Asian countries relative to European countries. Out of Singapore's 424,402 students in 2020<sup>44</sup>, about 121,000 students attend private education institutions<sup>45</sup>. However, this is a different story when it comes to Germany, where only 750,000 attend private schools out of 8.4 million students<sup>46</sup>. Around 28.5 per cent of students are enrolled in private education in Singapore, which is significantly more than Germany's 8.9 per cent, indicating that private schools play a much larger role in Singapore than in Germany.

43. (<https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS>).

44. (<https://www.moe.gov.sg/-/media/files/about-us/education-statistics-digest-2020.ashx?1a=en&hash=9E7EFD9B8088817C207F8AE797037AAA2A49F167>).

45. ([46. \(<https://www.internations.org/germany-expats/guide/education>\).](https://eduvalue.com.sg/the-decline-of-private-education-in-singapore-how-to-work-against-the-decline/#:~:text=It%20is%20estimated%20that%20the,(PEIs)%20(3))</a>).</p></div><div data-bbox=)

In terms of IT infrastructure, including IT equipment for students, Singapore has substantially invested and, for instance, distributed personal laptops or tablets to secondary school students seven years before COVID-19<sup>47</sup>. In 2019, Germany had one computer per 10 students. However, since the COVID-19 pandemic Germany's federal government has realised that there is a need to improve the digital infrastructure at schools and therefore have stated that they will invest 5 billion euros over the next 5 years<sup>48</sup>.

Indonesia has offered free internet for 27.3 million students and teachers to help ease the challenges of COVID-19, as well as developed BTS towers to improve internet access across educational institutions<sup>49</sup>. With all of these efforts happening simultaneously across Southeast Asia and Western Europe, education systems are aiming to become more digital and reliable through the development of their digital infrastructure. This has the potential to transform the education system as a whole and create new models of education.

## NEW MODELS OF EDUCATION

The change and transformation of education is mostly slow and it is happening gradually. But this has not been the case with some drastically different new models of education that have sprung up in the last few years.

New models of education essentially disintegrate the traditional and long-lasting notion of education, which consists of linear, time-fixed, location-fixed and non-transferable teaching and content principles.

Does teaching need to be in the classroom? Do students need to attend in-person at the same time in the classroom? Does every student need to learn the same content for a particular subject or degree? Does the teaching time need to be fixed for each student and certification? Why can't students change institutions any time? Why are pre-acquired skills not acknowledged and need to be "learnt" again, including assessments/examinations?

---

47. (<https://www.straitstimes.com/politics/all-secondary-school-students-to-get-personal-laptop-or-tablet-for-learning-by-2021-tharman>).

48. (<https://www.datenportal.bmbf.de/portal/en/education.html>).

49. (<https://docs.google.com/presentation/d/1H5SvUMlCiChIq9wVV8rBBAIp7YQX2QdB/edit?usp=sharing&oid=104611943886627683946&rtpof=true&sd=true>).

These are fundamental questions, which often led to the development and rise of alternative and innovative new models of education. While some new models have been around for some time, some other ideas and approaches have been born or sometimes “reborn” as a direct result of the school closures during the COVID-19 pandemic and other related implications.

Here are some of the new models in education:<sup>50</sup>

## ▪ **Online School/University**

Probably the model that is the most well-known, as online institutions have offered education courses for several years. Having said that, this model has suffered from a general perception that online education is of less value and remote learning did not receive the same acceptance as face-to-face education.

This has drastically changed with school and university closures as most (if not all) education institutions needed to switch to remote learning and even the most prestigious education institutions needed to endorse online education.

Online education is much cheaper than education in traditional “brick & mortar” buildings and it is almost universally accessible, provided there is internet and a computer. Nowadays, as the restrictions of the pandemic are slowly disappearing, most education institutions are looking into more and better utilisation of online learning. “Hybrid learning” as a combination of online and in-person classes is almost a must for any education provider, which covers pre-school, K-12, higher education as well as the adult learning space.

Online education portals have helped universities with adding or even switching to online education courses, especially with support in marketing, creating online-ready content as well as enhancing online delivery.

Examples: Open University (present in various countries), International University of Applied Sciences (Germany), Coursera, UpGrad.

---

50. (<https://www.qf.org.qa/eiu>).

## ▪ Cluster Model

This model of education has not taken off in many parts of the world but it is particularly impactful in countries where education is very expensive. In the cluster model, several education institutions break down the archetypal approach by creating “the university as a mini city” where a student can learn, sleep, eat, do sports and largely anything else. In the cluster model, institutions collaborate in sharing facilities, human resources and services.

This can save the institutions substantial expenses, which in return can reduce tuition fees for students.

Example: Atlanta University Center Consortium.

## ▪ Corporate University

For a long time, companies have let the government set up, run and manage higher education institutions. While in developing and emerging economies, the private sector has found interest and invested in education for quite some time, in many developed countries (especially in Europe), the education sector is still largely public sector driven. However, this is in the process of changing and corporates have set up universities to not only address the skills shortage in the labour market but also to explore education as a revenue-generating segment.<sup>51</sup> Large corporates as owners of universities provide some substantial advantages that are critical in today's education market with a strong emphasis on employability:

- Strong industry and skills focus
- Easy access to internships and jobs
- Utilisation of existing infrastructure and technology
- Well-known and established industry brand

## CONCLUSION

The education sector is currently experiencing one of its most exciting but also anxious moments and times.

Most exciting for those who explore new models, technologies, strategies and partnerships and show willingness to change.

---

51. (<https://nymag.com/intelligencer/2020/05/scott-galloway-future-of-college.html>).

Most anxious for those who are averse to change and who prefer to stick to traditional models of content, delivery and partnerships. While everyone has a role to play and traditional and conservative approaches to education will not change overnight, students and the industry will continue to demand change and shake some long-standing foundations of the education sector.

On one hand, Europe and Southeast Asia have drastically different circumstances in relation to the education of their young generation and professionals. On the other hand, intended outcomes and education impact all often the same from governments, corporates and the education sector; hence, challenges do not drastically differ. The lack of interest and willingness to overcome long-held perceptions of how education and pedagogy should be is probably the biggest obstacle in both regions to progress in changing education as a whole and making students, learners and parents understand.

Whoever is willing and able to adjust to the changing customer and competitive landscape will likely have a long-term future for maintaining and growing its education footprint but also for improving learner outcomes.

**Michael Klemm** is Founder and Managing Director of Singapore Education Network.

**Selena Huynh** and **Suzette Barajas** are undergraduate students with the University of California Davis (US).