

Google for Education

# Future of the Classroom

Emerging Trends in K-12 Education  
United States Edition





## Our approach

This report is part of a series on the evolution of K-12 education, mapping out current and emerging trends in classroom education. In collaboration with our research partner, **Canvas8**, we conducted a global analysis spanning:

- Fourteen expert interviews with global and country-specific thought leaders in education
- Academic literature review focusing on the last two years of peer-reviewed publications
- Desk research and media narrative analysis across the education sector, including policy research and teacher surveys, as well as input from Google for Education representatives across the globe

We acknowledge that some of the areas discussed in this report are ones that overlap with Google-led products and programs. In order to maintain a focus on the research and studies presented, we've intentionally excluded them.

# Americans are focusing on student tech access

The USA invests a large proportion of its GDP in education. At 6.1%, it is one of the highest among the 36 OECD countries and its partner countries – emerging economies that are not OECD members, but work closely with the organization.<sup>4</sup> Americans are seeing the benefits – high school graduation rates in the US are at an all-time high of 85%.<sup>2</sup> And 68% of Americans say that improving the education system should be a top policy priority for the government in 2019.<sup>1</sup>

But there are also concerns about how the digital divide impacts education. For example, 17% of teenage students in the USA say they have been unable to complete homework because they do not have reliable access to a computer or Internet connection.<sup>3</sup> To tackle this, there is a need to improve access to such resources. After all, technology is seen as a tool that can be harnessed to support education – 75% of American K-12 teachers use three or more types of digital tools with students in their classrooms.<sup>12</sup>

**“We need to invest time and energy in teaching kids about new technologies at a school level, as it helps ensure that students who might not have access to them at home don’t get left behind. Those kids need to be educated so they get a lift up and better chances later in life.”**

Dr. Jen Jenson, Professor of Pedagogy and Technology in the Faculty of Education and Director of the Institute for Research on Digital Learning at York University

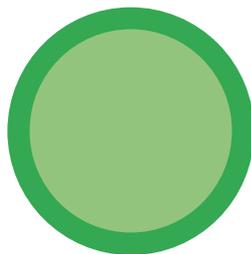
# The American classroom at a glance



**33%**

of American teachers would like more resources to help with tech-based lesson plans.

SAM Labs (2017)<sup>49</sup>



Primary school  
971

Lower secondary school  
1020

**971 hours**

are taught by American teachers in primary schools every year on average, higher than the OECD average of 799 hours. American teachers in lower secondary schools teach **1,020 hours**, exceeding the OECD average of 913 hours.

OECD (2018)<sup>5</sup>



**78%**

of teachers in the USA say they have not received sufficient training for technology they are asked to incorporate into their classrooms.

SAM Labs (2017)<sup>49</sup>

# Key Trends

From our [Global Report](#), we've analyzed eight of the most prominent trends in American K-12 classrooms



**Digital  
Responsibility**



**Computational  
Thinking**



**Collaborative  
Classrooms**



**Innovating  
Pedagogy**



**Life Skills & Workforce  
Preparation**



**Student-led  
Learning**



**Connecting  
Guardians & Schools**



**Emerging  
Technologies**



# Digital Responsibility

Children are online at a younger age than ever before – people under 18 years old account for an estimated one in three Internet users globally.<sup>8</sup> Increased access means that young people are spending more time on screens; the average amount of time Americans under 8 years old spent with mobile devices each day tripled between 2013 and 2017.<sup>9</sup> It is spurring a desire among students to learn to monitor their own tech use, with 68% of young people aged 24 and under saying they feel guilty or conflicted about spending time on their phones.<sup>10</sup>

Meanwhile, news stories have highlighted Silicon Valley parents' decisions to raise their kids without tech and send them to tech-free schools, sparking discussions around the role of technology in education.<sup>7</sup> In response to this, parents and teachers are eager to help students navigate tech use and foster healthy, responsible relationships with technology.



**39%**  
of Americans get a social  
media account before they  
are 12 years old.

Laughlin Constable (2018)

**“Digital citizenship and digital literacy programs are about more than learning how to use something. They must navigate the challenge of encouraging a healthy relationship with technology as a whole.”**

Vikas Pota, Group CEO of Tmrw Digital and Chairman of the Board of Trustees of the Varkey Foundation

Integrating digital safety in school curriculums by teaching students how to manage online risks has been shown to be foundational for developing responsible technology habits.<sup>11</sup> And American teachers are looking to tackle these issues – 7 out of 10 teach at least one type of digital citizenship competency. While 46% of teachers have addressed issues around antisocial behavior online, cyberbullying, and hate speech, 44% are tackling privacy and online safety.<sup>12</sup>

There’s also a desire to help identify trusted sources. Teachers’ top tech-related concern was that students lack skills to critically evaluate online information, with 35% observing this in their classrooms. It’s why news and media literacy is the fourth most-taught digital citizenship competency.<sup>12</sup>



**“As a society, we need to navigate the challenge around how to have a healthy relationship with technology, such as screen time and how we use it. We can address it through digital citizenship and literacy programs.”**

Sameer Sampat, Co-founder of Global School Leaders



## Life Skills & Workforce Preparation

Americans are increasingly questioning the value of standardized tests in preparing students for their futures – 70% of people who hold a postgraduate degree believe that there is too much emphasis placed on standardized test scores. Meanwhile, 59% of American adults report that standardized tests don't prepare students for the tasks of daily life.<sup>16</sup>

Instead of focusing on tests, there is a desire for a more holistic education experience that incorporates general life skills. For example, 75% of Americans think budgeting should be taught in school, while 63% think education should include cooking, and 66% want schools to teach car maintenance.<sup>16</sup> Helping to prepare teens for the future, Bullitt Central High School in Kentucky held an “adulting day,” covering topics students often do not know about when they graduate, such as dorm room cooking, changing a tire, credit cards, and financing.<sup>17</sup>



**75%**  
of Americans think that schools  
should teach students how  
to budget.

YouGov (2017)

**“Addressing a problem from different disciplinary perspectives is important. This is not only what students need to do when they enter the workforce. This is what we need to solve the big problems that we face, like climate change.”**

Dr. Hanna Dumont, Educational Psychologist and Researcher in International Education

With research linking higher emotional intelligence with stronger leadership and pressure-coping skills, there is more focus being put on soft skills such as empathy, collaboration, teamwork, and critical thinking.<sup>15</sup>

In fact, 96% of school administrators, 93% of teachers, and 81% of parents in the USA believe that social-emotional learning (SEL) is as important as academic learning. While 74% of teachers were devoting more time to SEL in 2018 compared to five years prior, 79% of American educators believe that SEL should be explicitly included as a part of state academic standards. But there is still a desire for more support in implementing this – only 22% of teachers say they feel prepared to teach SEL.<sup>19</sup>



**“There is an interesting tension or a debate about whether life skills should be taught in a linear process - once people have a good foundation of education such as in literacy and math - or whether these things happen in parallel.”**

Sameer Sampat, Co-founder of Global School Leaders



# Computational Thinking

The OECD has highlighted that students entering schools in 2018 will face future challenges that can't even be predicted today.<sup>21</sup> In the United States, it's estimated that there will be 3.5 million STEM jobs by 2025, but there's a risk of 2 million not being filled because of a lack of highly skilled workers.<sup>20</sup>

This narrative is affecting attitudes towards education – STEM education is becoming increasingly vital in the classroom. It means that access to digital skills is no longer perceived as a plus – it is now seen as a right for every student. But with 52% of Americans believing that students don't pursue STEM degrees because they think the subjects are too hard, there is room to make these topics seem more accessible.<sup>25</sup>



79%

more jobs related to STEM have emerged since 1990, and this is expected to grow a further 13% by 2027.

Pew Research Center (2018)<sup>24</sup>

**“Coding can be good practice for collaboration because you're working really intensely on one part of a larger project and then you have to figure out ways for it to all come together.”**

Sameer Sampat, Co-founder of Global School Leaders

The increasing value of STEM skills is driving the US government to focus on strategies that can “Make Computational Thinking an Integral Element of All Education,” including “Build Computational Literacy” and “Develop and Enrich Strategic Partnerships,” which focus on bringing together schools, colleges, and community resources such as museums to build STEM ecosystems that broaden and enrich students’ educational journeys. It also involves work-based learning through educator and employer partnerships. Another strategy is “engaging students where disciplines converge,” making STEM learning more meaningful and inspiring to students by focusing on complex real-world problems and challenges that require initiative and creativity.<sup>23</sup>



**“There’s more all of us could be doing to make STEM careers attractive and help people see the benefits of them. I think it’s hard to put that specifically on schools, but all of us in partnership could be doing more about that.”**

Rachel Wolf, Founding Partner at Public First



# Student-led Learning

With increasing recognition of the importance of transitioning students from school to the outside world, student autonomy has become a key area of focus. Education leaders argue that “student agency must become the norm, not the exception.”<sup>27</sup>

Leading the way, the Sudbury school model encourages students to choose their own activities and learn through everyday experiences outside the context of strict classrooms, curriculums, and grades. In mainstream American schools, the key focus is on collaboration. While 72% of US educators think that student-led learning is where “students engage in collaborative activities with some teacher direction,” the same percentage think it is when “students and teachers work collaboratively to determine how they will learn.”<sup>29</sup>



89%

of US educators rate student-led learning as “very important” or “important” to student development.

NuReva (2016)<sup>29</sup>

“There is an opportunity to personalize content - students all working on the same skill-based competency such as fractions, but it would be personalized towards the interest of the kids, whether that is basketball, dance, or something else.”

Sameer Sampat, Co-founder of Global School Leaders

Student-led learning is seen as benefiting a number of areas. While 80% of American educators say this type of learning is “extremely valuable” in developing increased student ownership of learning, 76% say the same for improving student engagement, and 65% believe it is valuable for developing 21st-century skills.<sup>29</sup>

As a result, schools in the USA are updating teacher-student structures to offer students agency over their education and educational environments – such as introducing project-based learning to give them responsibility over their work or democratic votes to grant them a say on certain areas in the school.



**“There shouldn’t be a teaching-led versus student-led discussion. There should be a more nuanced discussion about which conditions make teacher-led activities better, and which conditions make student-led activities better. The idea is to be as flexible as possible. To really adapt to what each student needs.”**

Dr. Hanna Dumont, Educational Psychologist and Researcher in International Education



# Collaborative Classrooms

Research is continually proving that classroom design – including color, lighting, acoustics, and spatial organization – impacts student learning. A landmark study found that classroom design alters students' academic progress over a school year by as much as 25%,<sup>33</sup> and ongoing research from 2018 suggests that classroom design affects learning by an average of 16%.<sup>32</sup>

In fact, 70% of educators would like larger classrooms and 85% say their ideal classroom would allow for movement. Even minor changes see results.<sup>36</sup> An American study has shown that greeting students at the classroom door leads to 20% higher engagement and 9% lower disruptive behavior.<sup>35</sup> When Township High School District 214 rolled out one-to-one device programs, flipped classes, blended classrooms, and committed to buying only modular and movable furniture, it saw higher attendance, more engagement, and an increase in student achievement.<sup>34</sup>



94%

of American educators say the space they teach in impacts students' learning.

MDR (2018)<sup>36</sup>

**“Classroom layouts are beneficial for teachers managing groups and encouraging peer-to-peer learning. It’s no longer just desks in a row facing a blackboard. Schools are encouraging groups to collaborate.”**

Vikas Pota, Group CEO of Tmrw Digital and Chairman of the Board of Trustees of the Varkey Foundation

As classrooms are increasingly seen as spaces to harness innovation to encourage learning, schools are looking to embrace design that encourages health, flexibility, creativity, and collaboration. This could be anything from furniture that can be easily altered to support different classroom activities to incorporating aspects of nature and natural light.

With research showing that exposure to nature improves overall cognitive development, there is also a focus on bringing the outside world into the classroom to improve students’ attention and wellbeing.<sup>51</sup> In fact, a study of 300 students in the US midwest found that classroom engagement significantly improved after a lesson outside in nature compared to a standard classroom, with teachers having to recapture students’ attention half as frequently.<sup>52</sup> So, the introduction of more mobile devices could allow students to learn in different environments.



**“The bigger design challenges have to do with fluidity. Can you reconfigure the furniture so that you have a space where everyone can sit on the floor, then have everyone sit in the circle, and then change it for a very hands-on science experiment? That would be very valuable from a learning perspective.”**

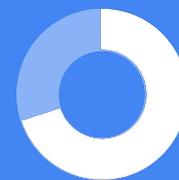
Sameer Sampat, Co-founder of Global School Leaders



## Connecting Guardians & Schools

Globally, 25% of parents spend seven or more hours assisting children with their homework.<sup>37</sup> As 'drone parents' in America become more involved in their kids' lives, they want to be involved in their schooling, too. This desire is also being expressed by teachers in the USA – 70% think that parents are not sufficiently involved in their child's education. So, there is an opportunity to create networks that allow guardians to closely engage with schooling.<sup>41</sup>

Research suggests that engagement between families and educators can actually improve student achievement. Messaging apps or online portals can create an ecosystem between guardians, students, and educators to highlight homework assignments, share school notifications, and help guardians understand how to support their child's progress.<sup>13</sup>



70%

of American teachers think that parents are not sufficiently involved in their child's education.

Age of Learning (2018)

**“What’s exciting about communicative technologies, but has been underexplored, is how you really use parents as a partner in education.”**

Rachel Wolf, Founding Partner at Public First

As both guardians and educators express a desire to better connect with one another, technology that facilitates conversation between both parties is becoming increasingly valuable.<sup>38</sup> In fact, 76% of American teachers and administrators say that technology is important in engaging parents with their child’s school performance.<sup>39</sup>

But it’s important to ensure that the information being shared with parents about children’s progress is accessible. To offer parents support in understanding students’ work, around 500 schools across 22 states are remodeling the parent-teacher conference. The new sessions see parents carry out tasks similar to those their kids carry out in the classroom. The aim is to teach parents how to academically engage their children outside of school hours.<sup>18</sup>



**“You might imagine parents just being inundated with too much information. So it is key to give parents the high-level takeaways around how their child is performing without overwhelming them.”**

Sameer Sampat, Co-founder of Global School Leaders



# Innovating Pedagogy

American teachers are working long shifts - clocking in 50 hours per week, they rank 6th out of the 35 countries included in the Global Teacher Status Index.<sup>26</sup> And it's being reflected in their wellbeing. In the USA, 61% of teachers say they are “always” or “often” stressed.<sup>43</sup>

But teachers are widely seen as ‘agents of change’ - the 2018 Global Teacher Status Index found a direct correlation between the status of teachers in their country and students’ academic outcomes.<sup>26</sup> Public perceptions of the importance of teachers in the USA are high – on average, Americans think that teachers are underpaid by \$7,500.<sup>28</sup> So, there is a desire to offer them more support and resources to help them excel.



61%

of teachers say they are “always”  
or “often” stressed

American Federation of Teachers (2017)

**“A key challenge for teachers is that the curriculum they are required to teach is rigid. So, teachers have to differentiate for students who might be on par with grade level as well as those multiple years behind.”**

Sameer Sampat, Co-founder of Global School Leaders

Freeing up time can have a big impact on teachers' engagement and motivation. Whether it's by streamlining administrative tasks or helping to grade papers, technology can be harnessed as a crucial tool.

But with just 10% of K-12 teachers in the US feeling secure in their ability to incorporate “higher-level” technology into their classrooms, there is room to offer more support in using these technologies effectively.<sup>44</sup> In fact, 79% of teachers say they want to go through training to become familiar with such tools.<sup>45</sup>



**“I think that technologies can and should be used to free up resources for the teacher to have interactions with students, in particular those who need more support. I do think that it would be important for the technology itself to be adaptive.”**

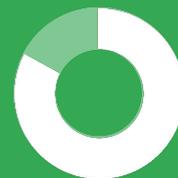
Dr. Hanna Dumont, Educational Psychologist and Researcher in International Education



## Emerging Technologies

Emerging technologies are bleeding into students' everyday lives. In the USA, 91% of children aged between 4 and 11 have access to a smart speaker or voice assistant.<sup>48</sup> In December 2018, over 4 million US households had used a virtual reality (VR) device.<sup>30</sup> And by 2022, it is estimated that there could be 2 billion monthly mobile augmented reality (AR) users worldwide.<sup>46</sup>

Schools are looking for ways to incorporate these emerging technologies, which are becoming more commonplace, into classroom learning. In fact, it is expected that artificial intelligence (AI) in US education will grow by 47.5% from 2017 to 2021.<sup>50</sup> Incorporating tech into the classroom partly stems from a desire to encourage students to be confident users of such tools – 82% of American teachers think that using tech better prepares students for future careers.<sup>49</sup>



82%

of teachers in the USA think that using tech in the classroom better prepares students for future careers.

Sam Labs (2017)

**“A lot of schools are trying to figure out what the role of technology should be in classrooms and how to successfully use it in an effective way.”**

Sameer Sampat, Co-founder of Global School Leaders

Emerging technologies can take on many roles in the classroom – including facilitating administrative tasks and being incorporated into pedagogy to increase student engagement. As an example of the former, a Professor of Information Sciences and Technology at Penn State Beaver has proposed a classroom voice assistant that can take attendance and track class participation.<sup>31</sup>

The potential for increased engagement means there is an opportunity to incorporate technology into more parts of the curriculum; 69% of teachers believe that technology can be used to support any subject.<sup>49</sup> Research on AR in the classroom has also confirmed that the technology improves learning performance and boosts learning motivation.<sup>47</sup>



**“It's important to understand when and how to use technology effectively. It has to be combined with pedagogy to create real deep learning. I think understanding that distinction and actually that strategy is very important.”**

Dr. Jen Jenson, Professor of Pedagogy and Technology in the Faculty of Education and Director of the Institute for Research on Digital Learning at York University

**“In the future, unlike the current fixed infrastructure in the classroom, it will be multifunctional, multi-use and fluid - allowing people to mold the space and discussion.”**

Vikas Pota, Group CEO of Tmrw Digital and Chairman of the Board of Trustees of the Varkey Foundation



Read the [Future of the Classroom: Global Edition](#) for insights across all eight emerging trends



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