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# TECHNOLOGY AND EDUCATION: **DISRUPTING CLASSROOMS WITH BLENDED LEARNING**

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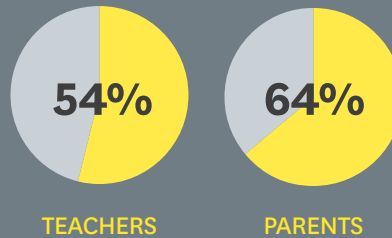
## HOW TECHNOLOGY IS DISRUPTING THE CLASSROOM

The promise of new technologies to transform education by delivering learning that is personalized and engaging for each student has caught the attention of educators, parents, and policymakers.

### PARENTS AND TEACHERS AGREE ON THE IMPORTANCE OF TECHNOLOGY IN THE CLASSROOM

SOURCE PARENTS AND TEACHERS ON TECHNOLOGY IN EDUCATION, AUGUST 2012. HART RESEARCH FOR LEAD COMMISSION.

Technology will be much more important in preparing young people for their future.



### INTRODUCING BLENDED LEARNING: MIXING ONLINE AND IN-SCHOOL LEARNING

SCREENSHARE

GAMES

VIRTUAL

WHITEBOARD



VIDEO

CHAT

TABLETS/PHONES

ONLINE TESTING

SOURCE CLAYTON CHRISTENSEN INSTITUTE FOR DISRUPTIVE INNOVATION.

### BENEFITS OF BLENDED LEARNING



Online content allows students to learn at their own pace.



Students take assessments when ready and move on only after they've mastered concepts.



Students travel on different learning paths with online content because it's more modular.



Flexibility in how to learn concepts allows students to learn in ways that work best for them.



The tools available in blended learning help teachers individualize each student's education—particularly important when teachers have large numbers of students in their classes.

# TECHNOLOGY AND EDUCATION: DISRUPTING CLASSROOMS WITH BLENDED LEARNING

The promise of new technologies to transform education by delivering learning that is personalized and engaging for each student has caught the attention of educators, parents, and policymakers.

Because all students learn at different paces and have different levels of background knowledge and conceptions about topics, digital learning offers a unique way to offer customized solutions for K-12 schools and children at scale.

But looking around the globe, it's hard to argue that the actual impact of technology has lived up to its hype or transformative ambition in education. The United States has spent well over \$100 billion equipping schools with technology with relatively little to show for the investment. The country of Peru equipped 800,000 of its public school students with low-cost laptops to the tune of over \$200 million—and the effort flopped. Meanwhile, countries in Asia are digitizing their course materials without a clear connection to how it will expand access to learning or will improve the quality of education.

The issue is not the technology, however. It's the failure to understand the process of innovation and then create a strategy that allows an innovation to solve the problems we face and transform education.

That schools have gotten little back from their investment in technology should come as no surprise. Virtually every business and organization has done the same thing schools have done when implementing an innovation. An organization's natural instinct is to cram an innovation into its existing operating model to sustain what it already does, but not fundamentally transform it.

Pioneers of online learning, however, have made significantly more impact than most education technology efforts because they have sought to solve such problems and understood the innovation process. They have had significant impact in bringing specific classes to financially strapped schools in certain areas, for example. And increasingly, educators and entrepreneurs are seizing the opportunity in what we call blended learning—the mixing of online and in-school learning to serve all students.

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Done right, blended learning breaks through the barriers of the use of time, place, path to understanding, and pace to allow each student to work according to his or her particular needs—whether that be in a group or alone, on practice problems or projects, online or offline. It preserves the benefits of the old and provides new benefits—personalization, access and equity, and cost control.

The question increasingly is how educators can capture these benefits. Blended learning is not inherently good or bad. It is a pathway to student-centered learning at scale to allow each child to achieve his or her fullest potential, but it is not a guaranteed success.

To implement an innovation so that it will transform an organization, one key is to implement it disruptively—not by using it to compete against the existing paradigm and serve existing customers, but to let it compete initially against “nonconsumption,” where the alternative is nothing at all.

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To convey what this means, it is important to first understand what disruption is and build off the ideas that Clayton Christensen first wrote about in *The Innovator’s Dilemma*. In every market, there are two trajectories: the pace at which technology improves and a slower pace at which customers can actually use the improvements. Customers’ needs tend to be relatively stable over time, whereas technology improves at a much faster rate. Products and services that are initially not good enough for the typical customer ultimately pack in more features and functions than customers can use.

We call innovations that sustain the leading companies’ trajectory in an industry sustaining innovations. Some are dramatic breakthroughs, whereas others are routine. Airplanes that fly farther, computers that process faster,

and televisions that have incrementally or dramatically clearer images are all sustaining innovations.

Importantly, it does not matter how technologically challenging the innovation is. As long as the innovation helps the leaders make better products that they can sell for better profits to their best customers, they figure out a way to do it.

On occasion, however, we see a disruptive innovation. A disruptive innovation is not a breakthrough improvement. Instead of sustaining the leading companies’ place in the original market, it disrupts that trajectory by offering a product or service that actually is not as good as what companies are already selling. Because the disruptive innovation is not as good as the existing product or service, the customers in the original market cannot use it. Instead, the disruptive innovation extends its benefits to people who are unable to consume the original product, so-called nonconsumers, because it’s too expensive or inconvenient.

Disruptive innovations tend to be simpler and more affordable than existing products. This allows them to take root in simple, undemanding applications within a new market or arena of competition. Here, the very definition of what constitutes quality, and therefore what improvement means, is different from what quality and improvement mean in the original market. Because the definition of performance is so different and the industry leaders’ customers cannot use the product, those companies have a difficult time implementing disruptive innovations.

Little by little, the disruption predictably improves. New companies introduce products that for them are sustaining innovations along their trajectory. And at some point, disruptive innovations become good enough to handle more complicated problems and take over, and the once-leading companies with old-line products go out of business.

We’ve seen this pattern in everything from computers to cars. Personal computers disrupted mainframe and minicomputers, and now smartphones, which were once primitive, are in the early days of disrupting laptops. Toyota and the Japanese automakers disrupted Detroit’s car companies, and now Hyundai and Kia are disrupting the Japanese companies. Transistor-powered electronics that were originally so primitive that only teenagers would buy them over time disrupted vacuum tube-powered

products. For decades there was no disruptive innovation in the hotel industry, but today Airbnb is changing that. In each case, the disruption has followed the same pattern: started in an area of nonconsumption outside of the mainstream with a relatively simple application and then improved to transform the sector.

In education, one set of technologies has been making a significant impact by following this same pattern: online learning.

Online learning isn't, for the most part, disrupting brick-and-mortar schools. Schools provide critical support for students and families beyond academics.

Instead, over the last two decades, online learning has found its way into schools by disrupting the traditional classroom. It has landed in areas of nonconsumption within schools where educators would like to be able to offer a particular course, but for any number of reasons—lack of financial resources or available teachers, for example—the school can't offer it. Some of the big areas online learning has taken root have been in dropout and credit recovery, and advanced and specialized courses that schools don't have the resources to offer.

The first instances of online learning were quite primitive. The content was flat and boring; the ability to communicate with teachers and students online was challenging at best.

But online learning—like all disruptive innovations—has continually improved. The content is becoming more robust. The programs are leveraging data to become more adaptive and personalized. Platforms are beginning to use game-based learning and techniques to boost engagement. Communication online is more powerful, with video, chat, screenshare, and virtual whiteboard features that enable people to collaborate around the globe. And with mobile learning and other form factors emerging and lowering the cost to learn online, it's becoming more and more accessible.

Online learning has, over the past several years, also improved by moving beyond its original distance—or virtual—learning roots. Increasingly it's moving itself into schools via blended learning. The question is how can educators capture the vast potential of blended learning in terms of personalization, access and equity, and cost control?

## How can educators capture the vast potential of blended learning in terms of personalization, access and equity, and cost control?

The first rule is simple, even if it is counterintuitive. Do not start with the technology.

Instead, schools should follow a tried-and-true design process to innovate successfully. The first step is to pick a rallying cry by identifying the problem to solve or the goal to achieve. Some problems relate to serving mainstream students in core subjects, while others arise because of gaps at the margins—where schools cannot offer a particular course, for example. Both areas are worthy of innovation. In either case, though, the problem or goal must not be about technology—so as trying to solve a “lack of devices”—and lead to a deployment of technology for technology's sake.

With the problem or goal identified, it is important to state it in a “SMART” way—specific, measurable, achievable, realistic, and time-related—such that an organization will unambiguously know what success is and whether it has been realized.

One common mistake is failing to bring the right people to the table to lead the effort. The result is that teachers are either stuck with tasks beyond their reach or too much bureaucratic oversight. Schools must match the right type of team and the right people to the scope of the problem.

The Milpitas School District in California, for example, has created coordinating teams to support teachers innovating within their classrooms, and brought together heavyweight schoolwide design teams to rethink the very structure of some of their schools.

With the rallying cry in place and the right team organized, it is time to design. The starting point is to look at a school from the viewpoint of students to understand what they are trying to accomplish in their lives and thus what motivates them. When leaders get the design right from their pupils' perspective, such that young people feel that school aligns perfectly with the things that matter to them, students arrive in class eager to learn. This is not to say

that educators should not instill certain core knowledge, skills, and dispositions in students, but that to accomplish these objectives seamlessly, schools should be intrinsically motivating. This means not only understanding what students are trying to accomplish, but also understanding the experiences they need to get those jobs done, and then assembling the right resources and integrating them in the right way to deliver those experiences.

Ensuring that teachers have opportunities to achieve, receive recognition, exercise responsibility, and advance and grow in their careers is critical.

We know that teachers are a crucial part of the student experience. But to gain teachers' buy-in, schools must work for teachers as well, which is why designing the teacher experience is the next step. Teachers have personal jobs to do in their lives, and the magic happens when schools offer experiences that are fulfilling for both students and teachers. Ensuring that teachers have opportunities to achieve, receive recognition, exercise responsibility, and advance and grow in their careers is critical. To provide teachers these motivators, institutions using blended learning are experimenting with extending the reach of great teachers, assigning teachers specialized responsibilities, employing team teaching, awarding micro-credentials for achievement, and granting teachers increased authority.

The next step is the one where technology and devices finally enter the equation. The objective is to design the virtual and physical setup to align with the desired student and teacher experiences.

Some of the important questions that schools should ask when selecting content and software are: Should we build our own? Should we use one or multiple outside providers? Or should we adopt a facilitated-network solution—a platform that integrates modular content from a variety of sources? Considering devices—what type and how many—to match the software with student and teacher experiences is equally important.

Finally, teams should think through the physical environment in which students learn. Will the traditional egg-crate

factory-model school design enable students and teachers to be successful? Or is a more modular environment that enables increased customization desirable? Increasing numbers of blended-learning programs are embracing the latter.

From here, it's time to put the vision into action. That means taking the choices from these different steps and piecing together a coherent instructional model.

After a team finishes designing, its work is still not done. Execution matters. Schools must create the right culture. Blended learning accelerates a good culture and makes it great, but it will also accelerate a bad culture and make it terrible.

Schools should also implement their designs with humility and acknowledge that it is unlikely that they will get the design right on the first try. Taking a discovery-driven approach to help school leaders identify and mitigate risks as they kick off a blended-learning program—and iterate accordingly—will help avoid costly mistakes both for students and a school's limited budget.

Blended learning is no panacea. It's a scalable strategy that can break the trade-offs inherent in the traditional school design to allow teachers to reach students in ways never before possible. But for it to work, school leaders must not start with blended learning or technology for its own sake, but instead undertake a careful design process to unlock its potential.

#### **ABOUT THE AUTHOR**

Michael Horn speaks and writes about the future of education and works with a portfolio of education organizations to improve the life of each and every student. He is the co-founder of and a distinguished fellow at the Clayton Christensen Institute for Disruptive Innovation, a non-profit think tank; he serves as a principal consultant for Entangled Solutions, which offers innovation services to higher education institutions; and he is the director of the Education + Technology fund, a joint philanthropic project of Two Sigma and Robin Hood with the mission of unlocking the potential of technology to advance achievement for low-income students.

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