OPEN-SOURCE
LEARNING

How School Can Win the ~~Information~~ Disruption Age

David Preston, Ph.D.
david@davidpreston.net

OPEN-SOURCE
L E A R N I N G

Introduction

"

The pandemic is just the tip of the iceberg. Our education system faces increasingly frequent and intense sources of disruption. Now is the time for us to design a better version of school for tomorrow."

OPEN-SOURCE LEARNING

The Challenge

School as we know it was not built for today's world.

The coronavirus pandemic got everyone's attention. Closing campuses called school's purpose and operation into question.

But the pandemic is just the tip of the iceberg. Our education system faces increasingly frequent and intense sources of disruption:

- Corrosive politics and cultural norms that divide our communities and threaten our democracy.

- Systemic inequality, racism, violence, and institutional practices that harm our students.

- Housing, food, and economic insecurity that force students and their families to make hard choices about investing time, energy, and money in education.

- Extreme weather events such as fires and storms that adversely affect public health and make many of our homes increasingly uninhabitable.

Before we call for a "safe reopening of schools" and "back to normal" we should consider:

1. How disease spreads and harms young people and educators alike, especially when they congregate in shared spaces.

2. Whether people support campus safety initiatives, and how this affects both physical health and institutional trust.

OPEN-SOURCE
L E A R N I N G

3. Campuses were seen as unsafe before the pandemic. Schools conducted live shooter drills, installed surveillance devices and metal detectors, and deployed armed police officers to intimidate and physically restrain students.

4. Research has shown that traditional, standardized curriculum and instruction does not prepare students for the modern world of economic and technological innovation they encounter when they graduate.

The pandemic pushed the reset button on school. Now that students and their families are planning next steps, we must do better than "back to normal."

It is time for us to consider how school can effectively meet learners' needs in this era of disruption.

OPEN-SOURCE
L E A R N I N G

Rising to the Occasion: Our Mandate

Our mandate is to provide for the next generation.
Young people need safe, engaging, innovative learning experiences that will help them survive and thrive as they face an increasingly complex and uncertain future.

We must change our institutions through our practices, just as every generation of humanity has done throughout history.

Change begins with shared understanding.

First, we must admit our limitations. We cannot ever guarantee that it is truly safe for people to return to K-12 campuses without risking COVID-19 infection, illness, or death – or bullying, shooting, or rancid cafeteria food.

We also do not know what federal and state departments of education will require for the coming school years.

OPEN-SOURCE
L E A R N I N G

Acknowledging our vulnerabilities empowers us to define our strength. We know exactly when we should return to normal:

Never.

Declaring that school will never be the same is the essential first step in designing a better version of school for tomorrow.

There is value in focusing on what does not yet exist.

During the pandemic, the absence of clear federal or state guidance forced local agencies, communities, and individuals everywhere to figure things out for ourselves.

The lack of coherent policy created a vacuum of confusion and conflict.

However, the news is not all bad. In the words of famed general and military strategist Sun Tzu, "In chaos there is opportunity."

Heroes have emerged. Many people have acted with care and developed solutions that demonstrated extraordinary creativity and resourcefulness.

In the process, we all gathered information that informed even our most basic decisions about how to survive the pandemic, such as whether to wear a mask, disinfect our groceries, or go out in public.

As we've made these choices, new language, ideas, and habits have sparked our thinking and created neuronal connections we need to thrive in an increasingly complex and uncertain environment.

We have been ***learning***.

Learning is active. Being taught is passive. Life rewards the active and punishes the passive. The people who are surviving and thriving right now are the ones who hustled to figure things out for themselves. They are taking the most advantage of changes in education, work, travel, the economy, and health/lifestyle practices.

We can no longer afford to wait for orders. We must innovate. We must model effective learning practices and connect students with the information and people they need.

The resources we need are available online. Searching, clicking, and experimenting in digital environments is how many people learn today. These practices complement personal guidance. Owning the mandate to innovate and collaborate with learners and the stakeholders in our community means that we can help students learn even more effectively.

Pandemic Pedagogy: Building on Success

We already have a learning model that works even when school doesn't.

On Friday, March 13, 2020, a teacher stood in front of students in Room 619 at Santa Maria High School in California. "Before we leave for the weekend," he said, "we need to talk about the possibility that we may not be meeting here on Monday. We actually don't know when we'll see each other in person next. So, here's the question: Whether or not we come back to campus, what will change in our class?"

The students responded immediately, in unison: "NOTHING!"

The announcement came over the weekend. Campus was closed due to the pandemic. But the students were right. The following Monday, the course blog featured the day's agenda, just as it had every school day since the previous August.

The students wrote in their notebooks and posted to their blogs, which were linked in an online network for everyone to see.

Class met online once a day. Recordings were posted for students who couldn't participate synchronously. The connection became the constant – students requested that meetings continue over Spring Break.

By the time the school year ended, students:

- Watched and/or participated in 50 Zoom meetings.
- Read and discussed two novels, four poems, and an essay written by their teacher as a model.

OPEN-SOURCE
L E A R N I N G

- Published thousands of journal entries, blog posts, essays, and collaborative projects.
- Hosted and contributed to conversations that ran the gamut of their experience in quarantine.
- Formed a cadre and lived a success story that will stay with them for the rest of their lives.

Some students, inspired by 500-year-old pandemic journals of indigenous Mesoamericans, contributed chapters to an e-book they called *Surviving With Class: High School Letters From the Coronavirus Quarantine*.

Other students explored their own interdisciplinary questions.

The students' success was predictable. They were following a ten-year tradition of learning innovators. They built their foundation seven months earlier, during the first week of school in August 2019, when they elected to become members of an Open-Source Learning network.

Open-Source Learning: A Theoretical Framework

" **Learning wants to be free.**"

The practices that have become known as Open-Source Learning (OSL) got their name more than ten years ago from systems thinking in the natural and social sciences, and from the open source software movement.

School is traditionally a closed system. Campuses are islands in the community. Classrooms are siloed, isolated even from each other. All spaces and informational transactions are private, monitored, and guarded from public view or participation.

The physical and organizational design of school works against interaction, collaboration, and engagement. School does not take advice or easily adapt; it is done "for" or "to" students – not *with* them.

Closed systems constrain learning. Learning wants to be free.

OPEN-SOURCE
L E A R N I N G

Everyone sees the world changing. We all want to understand it, participate in it, and succeed in it.

The power of learning drives open systems.

Open systems interact with their environments. They integrate new parts and ideas. They respond, evolve, adapt, and improve.

Open systems change.

Members of open source networks, such as those that create software, share and collaborate. This is easier when information is transparent. In open source software development, it is common to "clone and fork" code – that is, to copy something and customize it for a specific community or purpose.

OPEN-SOURCE
L E A R N I N G

With these ideas in mind, Open-Source Learning is defined as:

A guided learning process that combines timeless best practices with today's tools in ways that empower learners to create interdisciplinary paths of inquiry, communities of interest and critique, and a portfolio of knowledge capital that is directly transferable to the marketplace.

Each OSL practitioner can apply these values in different ways.

Creating optimal conditions for growth makes no demands of the flowers in the garden. In learning, as in nature, diversity and divergence are advantages. When one person develops and shares their own strategies and tactics, it gives the rest of us a chance to learn and improve.

OPEN-SOURCE
L E A R N I N G

Here is a closer look at each element of the OSL framework:

A Guided Learning Process

Anyone can practice Open-Source Learning. School is a formal organizational context for learning that presents unique opportunities and challenges. Students must negotiate power relationships with teachers to create understandings and agreements with teachers that build trust and encourage intellectual risks.

OSL teachers level the playing field by serving as guides. Models. Lead learners. Facilitators who engage with students and co-create a customizable learning experience that incorporates age and stage appropriate content.

Using a consultative approach, the OSL teacher asks questions and connects students with ideas, materials, and people that provide answers.

Apart from extreme exceptions, such as breaking laws or hurting sentient beings, OSL supports every conceivable inquiry.

OSL is the "friend who says 'Yes.'"

Students discover that their own voices and lived experiences are essential to their learning process. They become managing partners, and eventually champions, of their own education.

Timeless Best Practices

In order to differentiate learning experiences to the personality, interests, and learning style of each individual student, the Open-Source Learning teacher draws on proven traditions, including (but not limited to):

- Socratic dialogue

- Active listening, close reading, & reflective writing

- Social learning

- Critical pedagogy

- Heritage language acquisition

Frameworks such as these point to specific strategies and tactics.

Today's Tools

The internet is >50 years old. It influences every aspect of our economy, our democracy, and our personal lives. Open-Source Learning integrates the use of digital tools and awareness of digital culture to help students understand the virtual world in which they already live.

As an open system, OSL adapts to engage with new circumstances and tools as they develop. Today's 2.0 and semantic web, video conferencing, collaborative online platforms, and emerging ideas such as cybercurrency provide opportunities that did not exist just a few years ago. OSL is ideally positioned to make use of them all.

OPEN-SOURCE
LEARNING

NOTE: Although professional and popular articles frequently pit "distance learning" against "face to face" courses, this is a false dichotomy. OSL can be practiced in any medium. Technology can be pen and paper, or a personalized, high-touch communication process. You are practicing OSL right now by considering the ideas in this document.

OSL's *technology* is a direct descendant of its root, the Ancient Greek "techne," which means cleverness. Open-Source Learning helps us use tools more effectively to achieve our goals.

Learning online empowers us to accelerate and amplify our learning as an extension of personal interaction and engagement. OSL may be practiced with or without the internet, in any variety of combinations with on-campus classes, or as a 100% virtual program.

OPEN-SOURCE
L E A R N I N G

Empower Learners

Studies have shown that preschoolers ask 100 questions a day – but by the time students get to middle school, they stop asking questions altogether.

Open-Source Learning restores the passionate curiosity that drives us to learn. Learning requires action. Risk. The courage to make mistakes, and the resiliency to apply the lessons of those mistakes in a renewed effort.

Active learning requires agency. Students participate in OSL as members of a network. Teachers are responsible for administrative functions and program evaluation, but when it comes to learning, the game is bigger than the players.

OPEN-SOURCE
LEARNING

Open-source Learning students become their own champions and advocates. Divergent, challenging thinking becomes a hallmark of learning.

This is especially true in today's society, where learners must learn to see through mediated illusions about credibility, agreement and truth.

Interdisciplinary Paths of Inquiry

Show me a cup of tea, and – for starters – I'll show you:

- Botany
- International cultures from China to England
- Ceramics
- Fluid mechanics
- A history of colonialism

Many academics and specialists think it strange to consider an object from so many perspectives. We have learned to think this way from a standardized curriculum that excludes much of our students' lived experiences.

Exclusion is particularly painful in social and cultural contexts. Students and educators suffer from loneliness and systemic biases in ways that we can no longer ignore. Interdisciplinary learning doesn't just connect the curriculum dots – it connects us.

Our experience of living is naturally rich and interdisciplinary. Exploring the connections between fields and perspectives enhances our understanding and improves our ability to learn.

Scholars have documented the benefits of the "Medici Effect" – viewing issues from multiple perspectives enriches learning and creates value by enhancing creativity, stimulating critical thinking, and requiring communication across different fields of expertise.

Open-Source Learning creates a Medici Effect by inviting students to ask questions. Every question is an interdisciplinary question. "Why doesn't my girlfriend like me anymore?" can lead through biology, probability, psychology, poetry, and more.

Rather than artificially dividing life into academic subjects, OSL encourages students to make meaningful connections by exploring personally relevant Big Questions and incorporating multiple subject areas in search of answers.

OPEN-SOURCE
L E A R N I N G

As students further their explorations, they begin to see the need for specific skills and conceptual understandings that are aligned with the traditional school curriculum and academic requirements for graduation and higher education.

Some recent examples:

- Gabriela turned her interest in fashion into a study of entrepreneurship and intellectual property law.
- Rafa launched a self-directed study of Earth Science because he wanted to learn about the environmental impact of high-performance automotive engines.
- Carolina sought out online math courses through M.I.T. because she wanted to interpret medical statistics about the pandemic.
- Dael became interested in geometry as an extension of his love for videography.

Communities of Interest & Critique

To paraphrase the African proverb: It takes a village to educate a child.

In the traditional closed system of the classroom, students are told to stay quiet and keep their eyes on their own papers. When they graduate, we wonder why they can't communicate, solve problems, take initiative, or collaborate more effectively. Teachers who are expected to be content experts and sergeants-at-arms control students' behaviors in ways that erode decision-making and cause personal discipline to atrophy.

Open-Source Learning encourages students to identify and connect with people who have the experience and expertise they respect and seek. When students can validate their work with experts, they receive critique and guidance.

OPEN-SOURCE
L E A R N I N G

Along the way, when students share their learning experiences with peers, parents/guardians, and others, they receive meaningful feedback and support.

EXAMPLE 1: A student patiently bided his time in high school waiting to graduate so he could learn to fly and become a pilot. When he joined an OSL network, he began exploring and connected with a master pilot at a regional airport for guidance. Within three months, the student was flying a plane – with his teacher in the back seat.

EXAMPLE 2: A student suffered from health problems that prevented her from attending school on a regular basis. Using OSL principles, she created a website – "Random Absence Mentoring" – where she curated course assignments and resources to help students. Over time, she learned to code her own self-assessments. The site became popular with students,

and expanded to include multiple courses. The student went on to attend UC Davis and a career as a computer programmer.

EXAMPLE 3: A transfer student struggled to find his way on a new campus. When he joined an OSL network, he expressed his desire to become a chef. He cooked meals for classmates and invited a local chef – who hired him right there in the classroom.

Portfolio of Knowledge Capital

Education technology companies from "learning management systems" to the College Board trade on the value of student-created content. The sector is currently valuated at more than one trillion dollars and is growing exponentially.

OSL students own what they create. Rather than upload content to a platform that they do not control, and to which they will lose access when they graduate, each OSL student builds their own

blog or website on the public internet where they curate their learning experiences.

OSL students trade on the value of what they create. They win scholarship competitions and gain admission to prestigious colleges and universities on the merits of the artifacts they create in the process of learning.

In the process of creating content, OSL students demonstrate digital proficiency. In order to curate their work, students learn to work with HTML and embed videos, animations, images, and scanned documents.

The professional quality of their sites development positions OSL students as valuable members in their learning communities, which attracts positive attention from colleges, universities, scholarship judges, and employers.

OPEN-SOURCE
L E A R N I N G

The transition from passive audience to active creators has widespread appeal – American culture romanticizes entrepreneurship.

School vision statements and the media love the possibility of a dream.

Business lore promotes the idea that a venture capitalist or angel investor will see the promise of a dream and invest.

But the truth is that investors don't invest in dreams. They invest in proven success they believe will scale.

Students need to attract and impress the scholarship judges, college admissions officers, and employers who can give them opportunities. For educators and administrators who want to boost the value of students leaving their care, authentic data – not seat time, grades, or test scores – is the key.

OSL students do more than write application essays that say, "If only you'd help me, I could do something wonderful."

OSL students share a link to content of their own creation that shows the world: "I am already a creator. I have already built my learning machine. With more fuel, we can take it anywhere. All aboard!"

Open-Source Learning: The Process

"
OSL strengthens the whole person.

The concepts we learn and the skills we build should prepare us for a balanced, successful life after we graduate."

OPEN-SOURCE
L E A R N I N G

Onboarding

On the first day of school in the traditional classroom, students are presented with a choice. They learn about OSL, they are invited to invent their own ideas, and they are asked to come to consensus about how their study will proceed.

In the virtual Open-Source Learning Academy environment, where OSL is already established, learners and their families complete a readiness inventory that helps them assess their technology and their interests, goals, & commitment to determine if the program is a fit.

Each learner and at least one member of their family participates in a check-in interview with the lead OSL educator prior to orientation. Each learner also completes an electronic agreement and appropriate district enrollment forms prior to the beginning of the program.

Co-Creation

The readiness inventory, the interview, and the orientation are designed to help learners become full partners in their own education. By the time they begin the semester, learners assume the role of design partner by creating their course blogs and demonstrating an understanding of OSL.

Most importantly, learners begin the semester by articulating their perspectives and making choices that customize their experience and distinguish their work product.

Big Questions and Key Interests

During their initial interviews, learners are asked about their interests and what they'd really like to know. Their feedback is reflected in the form of a question that structures the first 2-4 weeks of their personalized exploration.

As learners become familiar with the process, and begin to see how any question can integrate multiple subjects and align with traditional curriculum and graduation/university requirements, they will design their own Big Questions and Key Interests to guide their study.

Interdisciplinary Exploration

Every question we ask is interdisciplinary and can be viewed in terms of multiple academic subjects.

In the classroom, an all-encompassing statement such as "every question we ask" is an invitation to smartassery. Because Open-Source Learning invites students to consider themselves as colleagues of the teacher, occasionally a student responds to this invitation by testing boundaries and saying something like, "Oh, yeah? OK, here is my Big Question: May I go to the bathroom?"

The Open-Source Learning approach here is to take the question at face value and engage:

"Yes. Every question really is interdisciplinary. So, if asking permission to use the bathroom is really your Big Question, let's start by considering ways to think about it."

A starter list of topics related to the bathroom question:

- Psychology of power and autonomy
- Biology
- Plumbing
- Anthropology
- Sustainability and water conservation; and, of course,
- The grammar of "can" v. "may"

Engagement is the first step in the Open-Source Learning process. Students push boundaries and are rewarded. The conversation itself becomes a shared learning experience.

It does not matter whether the teacher is personally interested in the topic. What matters is that *the teacher is interested in the student's interest in the topic*.

When students realize the teacher's offer is sincere, they engage on a deeper level to think about what really matters to them.

In the end, Open-Source Learning validates what students have long suspected: learning is not limited by space, time, or traditional academic subjects.

Learners quickly move from design to process to content. Through the use of Socratic seminars, restorative dialogues, and asynchronous materials, students develop an understanding of exploration and argumentation that relies on credible information and reason.

By design, students examine each issue and Big Question from a minimum of three perspectives that are aligned with traditional academic subjects or areas of professional expertise.

OPEN-SOURCE
L E A R N I N G

Differentiated Feedback

As they produce work, learners have the option to receive and request feedback in different modalities and formats, such as text, online collaborative editing, audio, or video.

Offering differentiated feedback requires the learner to self-assess how they receive information, and empowers the learner by providing an opportunity to exercise choice.

Widening the Circle

As learners actively explore Big Questions and share experiences within the OSL network, they receive support and feedback from others. This is practice for the networking they will do for the rest of their lives.

Many people in modern culture, especially during the pandemic, suffer from loneliness and isolation. They need to learn how to use the most advanced communication tools in human history to create and sustain relationships.

One powerful way to connect with others is through shared interests. Knowledge is attractive. Anything worth learning is worth learning from an expert and sharing with a peer.

Open-Source Learning students introduce themselves to accomplished thought leaders and practitioners who have the experience and expertise that students respect.

Students request information and guidance that will further refine their work and introduce them to communities of excellence.

OPEN-SOURCE
L E A R N I N G

Benchmarking Success

Open-Source Learning generates artifactual data that makes it easy to see how students are experiencing their learning in real time. Parents, teachers, and others can engage with students around the data they create to determine whether progress is in alignment with goals.

Exploring Big Questions is about the journey, not the destination. Whether a student conclusively answers a Big Question is less important than what they discover along the way.

OSL strengthens the whole person. The concepts we learn and the skills we build should prepare us for a balanced, successful life after we graduate.

Data: Doing What Counts

"OSL transparently uses data analytics to strengthen connections with learners by applying the same UX/UI design principles that endear brand name consumer products and social media to their target audiences."

OPEN-SOURCE
LEARNING

Nearly one hundred years after our economy shifted from industry to information technology, more than fifty years after the invention of the internet, and in full view of each student who holds the computing power of 120 Apollo missions on the phone in their pocket…

School as an institution has not yet joined the Information Age.

Most students use digital devices. And during the pandemic the use of online learning management systems has exponentially increased the number of things educators can count.

However, the data that states and school districts analyze is labor intensive and obsolete. Teachers serve as data entry clerks and manually count attendance and grades, even though the data shows that scientific management, Carnegie units, and factory-style models of efficiency are not causally related or even correlated to real learning.

Online learning management systems are designed to replicate and quantify the traditional classroom experience, which brings to mind the advice of legendary educator, management consultant, and author Peter Drucker: "There is nothing so useless as doing efficiently that which should not be done at all."

The attention economy has shown us exactly how we can engage learners and help them understand how to build their mental fitness in the ways they focus, deal with distractions, and manage their digital resources.

OSL transparently uses data analytics to strengthen connections with learners by applying the same UX/UI design principles that endear brand name consumer products and social media to their target audiences.

OPEN-SOURCE
L E A R N I N G

UX

UX refers to "user experience" – how people think and feel about their interaction with a product or a service. UX design considers all the elements that shape this experience.

In the private sector, companies spend billions of dollars investigating and refining their UX. They want to know their customers, so that they can improve every element of interaction.

OSL applies this cognitive process to the learning experience. By constantly engaging in the "meta" conversation and investigating how the student thinks and feels in real time, OSL contributes to self-awareness and strengthens connection by being responsive.

OPEN-SOURCE
L E A R N I N G

Depending on the research goals and design, UX research strategies may include (but are not limited to):

- Learner journey mapping
- Ethnography
- Empathy mapping
- Longitudinal study
- Card sorting

UX design enables OSL to deliver individual students more of what they immediately need, and to help create a more positive association with learning in general.

UI

The term UI refers to the "user interface" – how people interact with the specific features of a digital platform or tool.

Whereas UX focuses on people and their general experience of a school or a process, UI focuses on how learners engage with a particular tool: a blog, an online conferencing program, or a collaborative platform.

UI is useful in terms of helping learners become more proficient in using digital tools to meet their needs and achieve their goals.

Over time, OSL can incorporate UI data into collaborating with learners and stakeholders to create open-source tools that will support learners' ownership rights over the content they create and data security in general.

OPEN-SOURCE
L E A R N I N G

Feedback & Assessment

In 1980, 1GB of computer memory cost $300,000. Administering multiple-choice exams via Scantron was about the best schools could do. It was impossible to share high resolution images or video on computers, much less on smaller devices like tablets or phones.

Today, however, we can easily visualize and share data in a variety of media across devices and platforms. Even multiple-choice exams can be made multi-dimensional, in order to better understand learners' reasoning. It is no longer enough to see **what** a student answers; we need to know **why**.

The same values OSL uses to co-create customized instructional programs with learners also apply to feedback and assessment.

OPEN-SOURCE
L E A R N I N G

Students' capacities for learning feedback are just as unique as their capacities for learning concepts and skills.

OSL offers opportunities to provide and receive formative feedback in multiple media, so that learners can evaluate what works best for them and maximize their improvement.

Feedback as a process also meets important needs for engagement and connection. Feedback brings people together for a common purpose: sharing information that leads to improvement.

OSL feedback processes draw learners into a sense of community and belonging, which increases motivation and retention.

OPEN-SOURCE
L E A R N I N G

Program Evaluation

How do we know we're doing what counts, instead of simply counting what we're doing?

In order to effectively document and evaluate the OSL program, we create a research agenda at the outset.

What insights are most important to users and stakeholders in the organization and the community? Engagement? Social production? A set of particular outcomes such as retention or graduation rates?

We have the capacity to measure and analyze all sorts of things online, including:

- Content
- Page views
- "Stickiness"

- Metadata (such as time, location, and duration of engagement)
- Influence
- Discrete digital artifacts
  - Emails
  - SMS/text messages
  - Comments to blogs/websites

The purpose of conducting ongoing research is to ensure that OSL remains a dynamic, learning construct that responds to feedback and continues to improve as more people use it.

2021-22: The Open-Source Learning Academy

As an independent virtual learning experience and instructional program, the Open-Source Learning Academy meets the needs of students and their families by:

- Alleviating concerns about returning to campus.

- Co-creating curriculum based on the learner's preferences and goals.

- Helping learners navigate the digital environment and become proficient in using digital resources.

- Connecting learners with current information and prospective mentors.

- Offering two-way, always-on communication between the learner, the family, the community, and the OSL teacher.

APPENDIX A:
Readiness Inventory

The Readiness Inventory is designed to help learners and families determine whether they have what they need to succeed in the Open-Source Learning Academy.

Items in the Readiness Inventory measure variables such as:

- Do you have a computer at home?

- Do you have a reliable, high speed connection to the internet?

- Do you have a quiet place to work?

- Do you have at least one other member of your household who supports your learning online?

- Do you have a daily routine that supports your online learning?

OPEN-SOURCE
L E A R N I N G

APPENDIX B:
Onboarding Interview

In order to fully engage students on day one, an Open-Source Learning teacher conducts an individual onboarding interview via video conference with each learner and at least one family member.

Onboarding interview questions are designed to elicit feedback in three major categories:

- Interests in prospective careers, avocations, and fields of study

- Previous experiences in learning, both online and offline

- Level of commitment to successful participation