

Stanford SOCIAL INNOVATION^{Review}

Next Generation Nonprofits Supplement

Sponsored by AWS

Beyond the Gallery Walls

By Martha Lucy

Stanford Social Innovation Review
Winter 2023

Copyright © 2022 by Leland Stanford Jr. University
All Rights Reserved

Stanford Social Innovation Review
www.ssir.org
Email: editor@ssir.org

college decisions. Before utilizing cloud technology, a college advisor would need to either manually interpret each financial aid document or ask their students to do so. DecidED's award-letter processing gives practitioners cloud-based, verified college affordability information. Besides controlling for human error, it saves organizations hundreds of hours of administrative time.

Building DecidED on cloud technology has accelerated our overall growth. Already, we have thousands of students and advisors across 41 states. To stay ahead, we've increased our product team by 50 percent. We also doubled our organizational budget from \$1.5 million to \$3 million, while securing new philanthropic support to fuel DecidED's expansion and potential influence on systems change, including major grants from The Bill & Melinda Gates Foundation, the Michael & Susan Dell Foundation, Capital One Foundation, and other major supporters.

In 2021, Moneythink launched the DecidED API, which expands our database of college financial-aid data and provides public access in a bid for greater transparency around college costs. Because DecidED solves for an acute need in the marketplace, we've been able to serve our beneficiaries in ways that we never before could have imagined.

THREE TAKEAWAYS

From our experience, we offer three takeaways for nonprofits considering building a digital programmatic component, developing an app, or pursuing a digital strategy:

Digital is not the endgame. | Rather, it is a powerful vehicle that can fuel your mission. Human relationships matter the most. Leading with empathy and compassion are what will give you a competitive advantage.

Determine the right intervention. | Allocate time to figuring out the parts of your program or organization that could be automated—without compromising your programmatic aims and your equity-centric mission.

Conduct lean, rapid testing. | Iterating helps mitigate early, unnecessary spending on what could be costly endeavors designing in-house technology. For Moneythink, this meant operationalizing a human-centered design approach so that we could find ways to build lightweight prototypes and use design sprints to test new tools and features. We also routinely tested our ideas with and for our end users. This has resulted in an accelerated and oftentimes cheaper development process.

Data-driven transformation can lead to and sustain greater mission impact. For Moneythink, this means systematically empowering students by giving them clear and correct information and ownership of their choices. It means holistically transforming the college success ecosystem by shifting the role that college advisors play using our automated solutions that allow practitioners more freedom to provide the support students really need. And it means informing college affordability practices and policies by leveraging our automated tools and predictive data sets that could influence efforts toward greater student financial and academic equity, research, and advocacy.

Digital shifts to cloud technology demand enormous energy, vulnerability, and high-risk tolerance. However, this effort was essential to better serve our beneficiaries and our team members. ♦

Beyond the Gallery Walls

The Barnes Foundation is using digital tools to grow its educational mission and reach new audiences.

BY MARTHA LUCY

The Barnes Foundation is a world-class art collection with a progressive educational mission. Our founder, the Philadelphia scientist-turned-collector Albert C. Barnes, believed that art had the capacity to transform lives, and that everyone—not just the elite—should have the opportunity to learn about it.

He chartered the Barnes Foundation as a place where such learning could happen, filling the galleries with his own collection and admitting his first cohort of students, many of them factory workers, in 1925. Art education classes were conducted in the galleries, with students seated in wooden folding chairs. On the walls hung a mixture of objects from all over the world arranged by Barnes himself into densely packed, ahistorical groupings, including modern French paintings, African sculpture, medieval triptychs, and ordinary household objects like spatulas and door hinges. Lessons focused on rigorous visual analysis that required no background in art or world history. Before his death in 1951, Barnes created the foundation's bylaws to ensure that his method of installation could never be changed: The groupings must be kept exactly as he designed them, and no explanatory text could ever be added to the walls.

A hundred years later, we have vastly expanded our founder's mission of accessible art education. The Barnes still offers classes in the galleries, but we have grown the number and diversity of offerings. We've introduced free programs for underserved communities and for K-12 students from Philadelphia public schools, and we've established a research department that produces new knowledge about the collection. Yet, we often find ourselves stymied by the limitations of physical space. The Barnes galleries are small compared to other city museums, making it a challenge to welcome school groups during public hours and to meet the growing demand for seats in our adult classes. Many of the rooms can fit only a handful of people, which means that parts of the collection, like African sculpture, cannot easily be incorporated into lessons. And given Barnes's no-wall-label policy, how were we supposed to share new research about items in our collection with our visitors?

EMBRACING TECHNOLOGY

Cloud technology helped us maneuver around some of these challenges, first on-site and then in virtual spaces. In 2017, we launched Barnes Focus, a cloud-based mobile app built using AWS that lets us share historical information about the collection while keeping the gallery walls free of labels and text. The visitor simply positions their phone in front of a painting or object and the app immediately pulls up the name of the artist, title and date of the work, and a brief contextual description. The

MARTHA LUCY is an art historian and the deputy director for research, interpretation, and education at the Barnes Foundation.



issued three months into the migration, they were having a good experience: More than 94 percent said they would continue taking online classes after the pandemic ended, and our enrollment numbers had tripled.

Part of our students' enthusiasm for online learning is owed to what the technology let them experience. Our instructors, teaching from home, used deep-zoom images stored on the cloud to bring students closer than they had ever been, visually, to artworks in the Barnes collection. The deep-zoom technology allows the user to pan over the image, inch by inch, so that you can see the nubby texture of a canvas, even the way a paint stroke gets hooked on the surface's minuscule bumps. In an impressionist painting, you can see brushstrokes moving over and across one another, their different colors dragged together. Maybe people didn't need to be in the physical presence of the art for meaningful learning to take place. Maybe there was more to the work of art than its physical aura.

Our students were seeing the artworks in new and revelatory ways. But if we were going to continue with online classes, we also wanted to capture the singular experience of being in the Barnes galleries. Our IT and audiovisual teams developed mobile carts mounted with

cameras that allow us to toggle between the deep-zoom images of individual paintings and live shots of the instructor standing in the galleries. Students can get a sense of the space, and of the unconventional groupings, but they also get to see details of the works of art that can't be seen in person. Crucially, this technology also allowed us to solve the problem of teaching from the restrictively small rooms. With just the instructor and the audiovisual technicians present, we can now "fit" hundreds of students into the galleries housing our African collection.

app is elegant, simple to use, and popular with our visitors—the use rate is over 80 percent—and, for our research team, it's easy to add and edit content. Currently, there are 800 interpretive texts accessible via the app. But we still had the problem of how to grow audiences given the Barnes's limited physical space. In 2019, we began exploring the idea of online classes for adults. Not only would a virtual classroom allow us to enroll more students, but it would help us to circumvent the immovability of Barnes's ensembles: Teaching with digital images would open a whole world of new juxtapositions for our instructors.

And yet we grappled with a philosophical dilemma: The idea of teaching in virtual spaces that took people away from the actual art felt counterproductive. After all, there was a uniqueness to the work of art that had to be experienced in person—a certain quality, or "aura," as the philosopher Walter Benjamin termed it, that no reproduction can capture. Museums offer visitors the pleasure of the aura, of knowing that the object before them was touched by the hand of the artist. What would it mean, then, for a museum to embrace virtual learning? Were we somehow suggesting that the actual physical object no longer mattered? How could we square an online format, with all its amazing democratizing potential, against our historical role as an institution dedicated to direct study of the work of art?

A year later, in 2020, these theoretical questions seemed less important. That March, the COVID-19 pandemic forced the Barnes, like so many other institutions, to close its doors and suspend all on-site programs. Eager to keep our students engaged, we decided to migrate a handful of adult classes, already in progress, to a digital platform—a huge logistical lift. For the first time in the Barnes's history, students were learning in spaces other than the gallery collection and, based on a survey

cameras that allow us to toggle between the deep-zoom images of individual paintings and live shots of the instructor standing in the galleries. Students can get a sense of the space, and of the unconventional groupings, but they also get to see details of the works of art that can't be seen in person. Crucially, this technology also allowed us to solve the problem of teaching from the restrictively small rooms. With just the instructor and the audiovisual technicians present, we can now "fit" hundreds of students into the galleries housing our African collection.

A VIRTUAL EDUCATION

The pandemic also interrupted our K-12 school program—a large, grant-funded operation that includes visits to the collection for more than 11,000 students and teachers annually. When those visits were suspended, our team responded by developing Barnes Art Adventures, a live, interactive program hosted on the cloud that lets students explore and create while learning about art from around the world. As with the adult classes, instructors make use of deep-zoom technology to expose learners to the art on a granular level. Barnes Art Adventures became our primary offering for schools during the 2020-2021 academic year, and we continue to deliver it alongside our on-site programs.

With the ambition of scaling our virtual K-12 offerings, our IT department built a custom livestream site with AWS that allows us to deliver the program to multiple partner schools simultaneously, in real time. This efficiency has been crucial for our small organization. Flipping the "camera on, mic off" model typically used for virtual field trips in Zoom rooms, we instead encourage students to express themselves through chat, where they can type or use our custom designed art emojis. We also enabled polls that update in the video feed in real time.

Early data from Barnes Art Adventures suggest that the rate of active student participation is consistently high—much higher than for a comparable on-site lesson. This is due to students being able to offer ideas simultaneously, unlike the traditional “sequenced participation” in a physical classroom. Moreover, students who are reluctant to participate in person are often more likely to speak up in the chat. In one episode of Barnes Art Adventures, with 240 participants in grades 2–4, students collectively logged more than 800 responses to questions and prompts given by the instructor.

EXPANDING OUR REACH

The single most important statistic affected by cloud technology is the number of students we can reach. During the 2020–2021 academic year, we delivered Barnes Art Adventures to 16,600 pre-K through grade-8 students in six states—a 40 percent increase from pre-pandemic years. Enrollment in our adult education classes more than tripled, from 1,195 students in 2019 to more than 3,000 enrollments in both 2020 and 2021. Earnings from adult classes also tripled from \$200,000 in 2019 to more than \$600,000 in 2020.

One of our major goals for the adult programs is diversifying our student body, and cloud technology helps us to do this in several ways. First, new revenue generated by online classes allows us to offer more scholarships at multiple price points to students who may not have the resources to pay for them. We offered 253 scholarships in 2020 and 378 in 2021, up from 100 in 2019. Second and more immediate is the way this technology eradicates physical barriers to access. A student in New Zealand told us she had always wanted to visit the Barnes but it was simply too far away. Yet she was able to beam into the gallery and participate in a lively discussion about the French artist Henri Matisse. Since launching our online classes, our geographic reach has grown exponentially, with students tuning in from 48 states and 8 countries.

Cloud technology has given us the opportunity to grow the Barnes’s educational mission in ways that our founder never could have imagined. Virtual spaces allow us to serve new and diverse audiences. People with disabilities or who lack the economic means to travel to Philadelphia can access our gallery classes online. Underserved communities and individuals with psychological and social barriers to entering an art museum—the most common being the perception that art museums are not “for them”—might feel more welcome in a virtual format.

Looking to the future, the Barnes will continue to build on the demonstrated early successes we have experienced using the cloud. Thanks to an AWS IMAGINE grant and support from the Pew Center for Arts and Heritage, we’re hard at work on a major new project—a digital arts education platform—that is essentially built on top of this technology. The platform, which we plan to debut in early 2023, breaks from the screenshare model to create a much more immersive, interactive experience for both pre-K through grade-12 students and adult learners. By offering 360-degree panoramic views of the gallery space, synchronous and asynchronous delivery modes, as well as a searchable library of completed classes, the platform will afford students more control over and flexibility within their learning experience. The project is grounded in ongoing research into the digital-arts education landscape and responsive to the needs and motivations of learners of all ages. We are optimistic that this new platform will be a major innovation in the field of digital arts education and that, with adaptations by peer institutions, it will not only help to shape the future of financial sustainability in the arts and culture sector but will truly democratize access to the study of art. ♦

From the Cloud to Clean Water

charity: water’s sensor technology guarantees that potable water flows continuously to communities in need.

BY CHRISTOPH GORDER

Nearly 800 million people worldwide lack access to clean drinking water. They are forced to rely on contaminated water sources such as streams and ponds that can cause illness and death. According to the United Nations, diseases from dirty water kill more people every year than all forms of violence, including war. Women and girls, who are most often tasked with collecting water, spend hours walking to find water instead of earning income, caring for themselves and their families, or attending school.

charity: water is a nonprofit on a mission to bring clean, safe drinking water to people in developing countries. When a clean-water project is built in a community, it brings health, economic development, education, and dignity. With the generous support of more than one million donors, in 15 years charity: water has funded 111,709 water projects in 29 countries and brought clean water to more than 15 million people.

Since our founding in 2006, we have pursued tech innovations to tackle the global water crisis and provide accountability and transparency to our work. For example, we have used Google Earth mapping technology to provide the GPS coordinates for every water project so that donors can see where their money is deployed. We were one of the first charities on Instagram, where we engaged with our supporters by sharing project photos and stories of impact, and we were the first charity to reach one million followers on Twitter. We were also an early adopter of virtual reality; we created a film that captured the 360-degree experience of gaining access to clean water for the first time.

As we’ve grown, we continue to face new challenges. One of the hardest lessons we’ve learned is about the sustainability challenges experienced by rural communities in the developing world. The reality is that some of the water systems in the remote communities we serve will break down over time due to heavy usage. When that happens, families are forced to return to contaminated water sources. Local governments have scant resources, and many villages are so remote that water systems are only checked periodically. Historically, there has been no real-time data regarding remote water systems. As a result, governments, nonprofits, and businesses have been severely limited in their efforts to keep clean water flowing.

As charity: water sought solutions to the problem of long-term sustainability of water projects, we were surprised to discover how little technological innovation had been adopted worldwide to address this massive problem. In 2012 we began looking into water management in developed economies for inspiration on how vital public services are managed. We learned that in cities like New York, Singapore, and

CHRISTOPH GORDER is the chief global water officer of charity: water. Previously, he spent 15 years leading disaster-response operations and managing large-scale health-care delivery programs around the world.