



Learning Gets Personal

How Idaho students and teachers are embracing personalized learning through **Khan Academy**

J.A. and KATHRYN

ALBERTSON FAMILY
FOUNDATION

A young boy with short brown hair is shown in profile, looking down and to the right with a thoughtful expression. His hand is resting on his forehead. The image is overlaid with several large, bright yellow circles. The text 'THE KHAN ACADEMY REPORT' is centered within one of these circles.

THE
KHAN ACADEMY
REPORT

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About This Case Study

During the 2013–2014 school year, the J.A. and Kathryn Albertson Family Foundation supported a statewide pilot initiative for Khan Academy in Idaho. Since then, policymakers, educators, and funders from around the United States and the world have asked about the experience. What happened? What made the initiative unique? And what broader lessons emerged for others who are thinking about adopting personalized learning approaches and taking them to scale? As a result of that outpouring of interest, the foundation hired the consultancy FSG to write this case study to describe the Khan Academy in Idaho pilot.

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We would like to thank all our interviewees, including teachers, administrators, legislators, and representatives of the J.A. and Kathryn Albertson Family Foundation, the Doceō Center at Northwest Nazarene University (NNU), and Khan Academy for contributing their invaluable perspectives and lessons learned to this case study.

Disclaimer

All statements and conclusions, unless specifically attributed to another source, are those of the authors and do not necessarily reflect those of the other organizations or references noted in this report.

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THIS IS A STORY ABOUT

ACHIEVING WIDESPREAD CHANGE BY ENERGIZING THE GRASSROOTS.

In the state of Idaho, a dedicated group of people—including 173 teachers, 10,500 students, one catalytic funder, a local university, and a small team from the nonprofit educational organization Khan Academy—all came together to do something that's rare in education today: generate widespread excitement for, and adoption of, a different approach to teaching and learning. The partners in Idaho understood that leading change within a complex and fragmented education system required a different approach—one that, if it was to succeed, could not follow a "command and control" model.

THE PROMISE AND CHALLENGES OF PERSONALIZED LEARNING.

Across Idaho, many "early adopters" (including teachers, administrators, and technology directors) are now exploring personalized learning, specifically through Khan Academy, which offers a free online learning platform to people anywhere in the world. Before this pilot, those educators operated in isolation, but now they are part of a new, interconnected community of practice. And most importantly, they are changing mind-sets and pedagogy across the state, laying the groundwork for greater improvement in student outcomes.

BRINGING ABOUT REAL CHANGE IN A LARGELY RURAL, RESOURCE-POOR, AND POLITICALLY CHARGED ENVIRONMENT.

Out of Idaho's 116 school districts, 81 (or 70%) are classified as rural, and many of them are in isolated areas. According to at least one measure, funding for Idaho's schools relative to property wealth ranks last in the nation. As in other states, Idaho's educators and policymakers struggle to build consensus on how to educate their children. Yet in spite of these obstacles, more than 10,000 students participated in a personalized learning pilot in one year alone—a tremendous achievement!

We believe this case study's lessons are relevant for policymakers, educators, funders, and others who want to bring about change in K-12 education. In the pages that follow, we tell the story of the first year of a Khan Academy pilot in Idaho, both to share its successes and to highlight its broader lessons.

Let's begin with the stories of how one teacher and one administrator approached the Khan Academy pilot to see the real impact they observed among their students.

¹ Idaho Business for Education and J.A. and Kathryn Albertson Foundation. Idaho Education Field Guide. Retrieved from http://issuu.com/jkaf/docs/idaho_ed_field_guide_v2

▶ Click to watch "Highlights"



Meredith: A Veteran Educator Eager to Change Her Teaching Practices

Meredith Gilstrap, a veteran math teacher of 14 years at Post Falls High School (a public school in rural northern Idaho), was frustrated. Despite her passion for teaching and her dedication to her students, she knew she was not teaching them in the way she thought best. “Frankly, the system in which we’d traditionally taught math in Idaho and elsewhere was terrible,” she said. “It had little to do with the research. I work with great teachers, and they’re all trapped within the system. When we send kids into the working world and they have horrible math skills, that represents a serious breakdown. Fixing it takes a reimagining of the system, and that’s hard to do.”

Meredith and a handful of colleagues began to explore personalized learning—an approach that allows teachers to respond more flexibly to individual students’ level of understanding—but they knew they didn’t have the resources to be fully effective. Then, in early 2013, Meredith received an email announcing a Khan Academy pilot initiative for willing teachers, and she jumped at the opportunity. “A colleague and I teach low-skill-level students, and we saw a chance to meet those students individually. **So we got excited about Khan Academy and tried to spread the word that this could make a difference.**”

Soon, Meredith witnessed many changes in her students. “My upper-level students went to town with Khan Academy. They cruised, and they loved the ability to not be held back in class.” But the changes weren’t limited to the best in the class.

“I also saw many of my lower-level students change from being externally motivated to internally motivated,”

Meredith continued. “For example, a couple students couldn’t understand why they just weren’t getting it. But with the immediate feedback from Khan Academy, they realized how to be successful with a few small adjustments. One girl suddenly realized she was pretty good at algebra when she took these small steps. Soon she started working ahead, and even tutoring other students! By the end of the year, she was a go-to tutor, and she has a new confidence in herself!”

Meredith acknowledges that Khan Academy is not a panacea. While some teachers will certainly use it effectively, others may not. But for Meredith, the newfound ability to identify learning gaps has helped her personalize student learning—just the opportunity she was waiting for.

[!\[\]\(10f8862fc183b400327470ea85afe9ae_img.jpg\) Click to watch “Meredith Gilstrap”](#)



Ken: An Administrator Who Wanted to Boost Student Engagement

In 2005, Ken Price was hired by the Marsing School District in rural southwest Idaho to develop and manage a new after-school program for more than 200 at-risk K-12 students.


Before he began using Khan Academy, Ken and his staff of 30 struggled to identify and address students' individual needs. "In an after-school program, staff members don't know the strengths and weaknesses of all the kids in the program," he explained

"I saw that Khan Academy could give the staff the ability to know what the students needed, and to give students material to work on that's appropriate to their level."

Another challenge was keeping students interested in learning. "The kids have been in school all day," Ken recalled. "They're mostly low-income and generally have low academic achievement. We needed to get these kids excited to learn on their own. Teachers in our program liked that the students could personalize their learning, and that Khan Academy could really help keep students on task."

For Ken, one story of a student's transformation stuck out in particular. "We have a fourth-grade student who has been in the program since first grade," he said. "He's an English learner, and his mom isn't in the picture. He hated school, but once he started using Khan Academy on the Chromebook, he started to like school. He became engaged. English learners are able to get on Khan Academy and do the videos and tutorials, stop it and listen to it in English again."

A number of preexisting elements contributed to Ken's success. In particular, he had the support of school leadership, the excellent work of a few "catalyst" teachers, and an overall inclination to innovate. "We had three new principals and a new superintendent," he said,



"so we had a unique confluence of events where people were open to something new and drastic—a window to bring about change.

We started with three classrooms. Then, after we saw what Khan Academy could do, the district expanded access to Khan Academy to all third through tenth graders during the regular school day and after school. The after-school teachers were some of the strongest in the building, so they were able to help lessen other teachers' concerns about technology."

To be sure, Ken faced some major challenges, such as the need to boost wireless capacity in the building and the reluctance of some teachers who preferred to continue working the way they had for years. In spite of those obstacles, however, Ken concluded that the pilot offers tremendous benefits for his students, particularly those without access to the best resources. "We believe Khan Academy works well with rural districts because if you have access to dependable, high-speed Internet, you have access to the same resources as an MIT research scientist," he said.

[▶ Click to watch "Ken Price"](#)

About the Khan Academy in Idaho Pilot, and **Why Others Should Take Note**

The Khan Academy pilot was designed by three partners: the J.A. and Kathryn Albertson Family Foundation (JKAF), Khan Academy, and the Doceō Center at Northwest Nazarene University (NNU).² As a true pilot, it was structured to allow partners, teachers, and students to innovate, learn, and adjust—and to do so together. Adoption during the first year was remarkably widespread: 47 schools in 33 districts participated, involving 173 teachers and approximately 10,500 students. (See graphic for pilot site locations across Idaho.) This geographic range and pilot size are especially striking for the first attempted adoption of Khan Academy across a state.

context dependent. What's more, bureaucratic hang-ups inevitably slow the pace of change, particularly at the school or district level, and individual teachers (like all professionals) can be resistant to across-the-board changes. The Idaho pilot pursued an alternative and ultimately more effective path.



But the goal of the Idaho pilot's intent was not to simply "implement" Khan Academy. Schools often implement technology without a vision for how to use the technology or an effective approach to change management, and unsurprisingly, many fail. What made the Idaho pilot unique—and what we believe provides lessons for others—were the pilot's principles of adoption, which really put the focus on students and individualized learning.

Traditionally, policymakers have used a limited set of tools to try to improve education. Legislators can issue mandates and philanthropists can tie grant dollars to specific practices, but these approaches don't always work as hoped. Teachers may ignore or skirt top-down policy directives when they do not feel invested in the process, and "best practices" are often

² NNU Doceō Center exists to inspire personalized learning through innovative practices in education. It is partially funded by the J.A. and Kathryn Albertson Family Foundation.

What Is Personalized Learning, and What Is Khan Academy?

ABOUT PERSONALIZED LEARNING

The term "personalized learning" has become increasingly popular in education circles. The following has been proposed as a working definition:

Personalized learning is tailoring learning for each student's strengths, needs, and interests—including enabling student voice and choice in what, how, when, and where they learn—to provide flexibility and support to ensure mastery of the highest standards possible.³

ABOUT KHAN ACADEMY

The goals of personalized learning have become increasingly attainable through recent technological advances in hardware (such as wireless capacity) and software. Khan Academy, a nonprofit educational organization, is one of the world's leading providers of personalized learning platforms and one of the few nonprofits in the education technology sector. Khan Academy's mission is to provide a free world-class education for anyone, anywhere. It reaches 12 million students per month and addresses topics such as math, science, computer programming, history, art history, and economics for learners from kindergarten to adulthood.⁴ In short, it's like having a free tutor 24 / 7.

Available over the Internet, Khan Academy offers practice exercises, instructional videos, and a personalized learning dashboard that empowers learners to study at their own pace in and outside of the classroom. For example, a learner can select a Khan Academy "mission," which is a curated set of resources that users can access on their learning dashboard. Missions guide learners through a specific grade level or academic subject (such as Algebra I) in a personalized way. In addition, many missions include a quick review of prerequisites to check learners' preparedness for grade- or subject-level material. Teachers may use Khan Academy in myriad ways, such as diagnosing learning needs, providing supplemental practice, or preparing students for upcoming lessons.

Khan Academy also offers "coach reports" that allow teachers and coaches to see how students are progressing in real time. This information is critical because it allows teachers to "meet students where they are." Thus, a teacher's role may shift from teaching the same lesson to all students at the same time to working with small groups on different lessons based on each group's specific needs.

This differentiated instruction allows all students to engage in content that is appropriate for their level, all at the same time.

³ Susan Patrick, Kathryn Kennedy, and Allison Powell. "Mean What You Say: Defining and Integrating Personalized, Blended and Competency Education." International Association for K-12 Online Learning, 2013.

⁴ <https://www.khanacademy.org/about>



Photo: Julianne Russell

The Story of the Idaho Khan Academy Pilot

A CHALLENGING CONTEXT

Idaho is poorer and more rural than most states, and its educational system is one of the least funded in the nation.⁵ Adding to those perennial challenges, the state's political environment grew toxic in 2012 during a painful public fight over legislation that, among other things, mandated providing a laptop computer for all high school students and teachers in the state.

This tense climate strained relations between teachers and statewide leaders, particularly the legislature, the Department of Education, and the governor. As Post Falls High School teacher Meredith Gilstrap explained, "The laws were very top-down, and folks felt like they weren't listened to." Many teachers were increasingly distrustful of policymakers.

TAKING A SHOT AMID ENTHUSIASM AND SKEPTICISM

In the midst of this challenging context, the J.A. and Kathryn Albertson Family Foundation (JKAF)—a private, family foundation committed to improving learning among all Idahoans—sought to make a difference. In 2012, the foundation helped launch a public speaker series known as the ED Sessions, which brought world-renowned innovators in education to the state.⁶ "Everyone was so polarized," JKAF Program Officer Blossom Johnston explained, "so we thought we could at least provide a space where people could learn what innovation in education looks like."

[▶ Click to watch "Overview"](#)

“We can do this— it’s a lot of work, but we can do this!”

One of the speakers was Khan Academy founder Sal Khan, who excited the educators in the audience—many of whom were still reeling from the political battles over classroom technology—with his inclusive vision for personalized learning. One math teacher, Julianne Russell of St. Joseph’s Catholic School in Boise, remembered how inspired she felt after the talk. “I was walking back with my colleague,” she remembered. “I said, ‘We can do this—it’s a lot of work, but we can do this!’”

Jamie MacMillan, then JKAF’s executive director, felt the excitement as well. Jamie, Sal Khan, and the team from Khan Academy quickly agreed to work together to bring personalized learning to Idaho students. They soon organized a free two-day workshop for interested teachers, co-led by the NNU Doceō Center and Khan Academy’s Lead of K-12 Partnerships Maureen Suhendra. To the organizers’ surprise, more than 250 teachers signed up. “We had more people than seats!” said NNU Doceō Center Director Eric Kellerer. The experience proved as engaging as it was popular. “I’ve never been in an education workshop for two days where teachers were engaged the entire time,” Kellerer noted. “Many teachers felt rejuvenated as professionals and clearly saw the benefits of giving students instant feedback through Khan Academy.”

At the same time, obstacles loomed. In early 2013, Idaho teachers prepared to implement the newly adopted Idaho Core Standards (Common Core), a challenge that

limited some teachers’ time to explore new approaches. In addition, Khan Academy itself remained unknown to many teachers. Stacey Walker, a fifth-grade teacher at Riverstone International (an independent school in Boise), reported that many of her colleagues had never heard of the Khan Academy. “Even those who had,” she said, “were a little skeptical about what it could do to change academic outcomes.”

A STRONG VISION TO CATALYZE SUPPORT FOR PERSONALIZED LEARNING

Yet that first workshop’s success sent a powerful signal that personalized learning had a strong and growing base of support. To advance their vision, the partners at JKAF, the NNU Doceō Center, and Khan Academy designed a pilot to provide grants to educators who wanted to adopt personalized learning techniques. JKAF pledged \$1.5 million to fund grants of up to \$50,000 each.

That grant quickly catalyzed real change, and soon more than 10,500 students had experienced personalized learning firsthand. In our interviews, enthusiastic teachers and engaged students shared compelling anecdotes about the experience, and early data suggest a correlation between the use of Khan Academy and positive academic outcomes. (See Appendix A for more information.)

⁵ Idaho ranks 44th among the 50 states in spending per pupil. Dixon, M. (2014, May). Public Education Finances: 2012. United States Census Bureau. Retrieved from <http://www2.census.gov/govs/school/12f33pub.pdf>

⁶ <http://www.theedsessions.org/>

How did the partners achieve such widespread and enthusiastic adoption of personalized learning? In short, they held to five key principles.

#1

Start with a holistic vision of how personalized learning will improve student outcomes, rather than a focus on implementing technology.

The vision behind the Idaho pilot was not to implement Khan Academy as a technological fix. Rather, it was to use Khan Academy as a free vehicle that teachers could employ to personalize learning and allow students to take more control of their education. Supporting personalized learning requires making significant changes in the teacher's role. Teachers shift from their traditional "sage on a stage" role to act more like coaches, differentiating instruction for each student. The partners in the Idaho pilot kept student learning at the forefront. "What we loved about Khan Academy wasn't technology in the classroom per se, but giving teachers the ability to see how their students were progressing," JKAF's

Jamie MacMillan explained. "We loved seeing the light go on as teachers understood that it wasn't just about putting kids on a math tutorial program; it was about prompting educators to see where their kids were." Once teachers saw where each of their students struggled or succeeded, they learned to adjust their practices in response. Blossom Johnston reflected, "We're trying to transform the way learning happens in the classroom—how teachers teach and how students learn." The overarching vision was to improve student outcomes, not just use a new technology.

#2

Rather than mandate a one-size-fits-all approach, innovate with teachers and administrators to develop context-specific solutions.

The partners believed that personalized learning would improve student outcomes, but they were humble enough to admit that they could not know the best way to use Khan Academy in each classroom. Khan Academy remains a relatively new tool, and educators are still exploring new ways to put it into practice. Understanding that the program is young and constantly evolving, the partners shied away from mandating specifics. They hoped that teachers could use Khan Academy to transform their teaching, but only through trial and error, humility, and grit. They designed the pilot to support those efforts, providing teachers room to experiment and innovate as well as the freedom to fail.

Factors for Determining Readiness to Benefit

Application reviewers selected classrooms who:

- > Were open to trying something new
- > Understood and agreed with the vision of personalized learning
- > Had at least two teachers on the applicant team (to give teachers a local support network)
- > Had support from district IT personnel and school leadership

In our interviews, teachers cited this pedagogical flexibility as the most important component of the pilot. "I admire how JKAF did it," said Meredith Gilstrap. "They don't say 'Here's how to do it.' Instead, the teachers of Idaho figure out how it works best."

Because the partners remained open to different pedagogical approaches, many teachers embraced Khan Academy and came up with new ways to use it. "Everybody was using Khan Academy in different ways," said David Lien of the Forrest M. Bird Charter School in northern Idaho. "To have the grant allow this amount of flexibility gave teachers more buy-in than with a typical grant, which says, 'You have to do it in this way.'"

The partners worked with teachers to think through ways Khan Academy could be used in the classroom, winning support from teachers. "With a lot of other grants, you are trying to prove you have done something or will do something," Riverstone's Stacey Walker explained. "In this case, the partners wanted the teachers to be copilots. This approach makes it feel like we are all in it together for math education in Idaho. I feel empowered, and that I have a real advocate for change."

#3

Attract teachers and administrators who are excited to benefit from personalized learning.

The partners avoided taking a top-down approach to recruiting educators and administrators into the pilot. Rather, they encouraged educators to opt in and sought out applicants who were ready to benefit.

First, the partners sent out an open call for applicants. This attracted early adopters who were already inclined to innovate, and yet placed no obligation on teachers who felt skeptical about Khan Academy or personalized learning in general. This first request for proposals led to 75 applications from K-12 districts, after-school programs, and even the Idaho Department of Correction's education system. Khan Academy's Maureen Suhendra observed of the grant process, "This approach circumvented traditional ways of scaling, such as top-down mandates from superintendents. This empowered teachers to decide whether they wanted to use Khan Academy as a tool in their classrooms."

Second, to ensure that applicants were ready to benefit from the pilot, grant application reviewers only selected teams that had a high commitment to personalized learning. Enthusiasm and excitement about using Khan Academy and employing its rich student information to inform their practices were critical elements in selecting grantees.



#4

Ensure that administrators and IT departments are engaged, because their active support is critical for removing barriers and advocating for teachers.

The partners required grant applicants to obtain the explicit support of school administrators and IT departments to participate in the pilot, because they knew how critical that support was to sustain teachers through inevitable bumps in the road. "My principal was behind us all the way," said Mark Peterson of Parma High School (a rural school in southwest Idaho). "He's generally hands off, but he also holds meetings for us to talk about what's working and what's not." As some teachers noted, however, tacit support was often not enough. "Last year our principal said she'd support us, but she didn't really understand what the pilot was about," explained one teacher. "She wasn't anti-Khan, but she didn't give a great amount of support either." According to NNU coach Jesse Buchholz, the principal's role was key. "A lot of the pilot schools that were very successful had administrators who understood what was going on in the classrooms," he said. "Principals are on the front lines receiving phone calls from parents, so it's critical for them to support teachers through both successes and failures."

#5

If you're going to hold educators accountable, give them the support to be successful.

To accomplish something completely new and very challenging, educators need support. "The support was different because there was ongoing follow-up," said Leora White, a teacher from Lone Star (a public middle school in southwest Idaho). "We were continually reminded that someone would be there if we needed support, and that they cared how we were progressing."

The NNU Doceō Center, with funding from JKAF, was the source of much of that key support. Its work included:

- > **Providing the project management and oversight needed to coordinate the overall grant, including holding participants accountable, and supporting and coaching all members of the team.**
- > **Providing intensive technical assistance at the beginning, specifically for purchasing and implementing a school's chosen technology, including setting up the wireless infrastructure, if needed.**
- > **Providing professional development sessions throughout the school year.**
- > **Checking in frequently with participants—through email, phone, the virtual forum Edmodo, and on-site visits—to learn about ways teachers were using Khan Academy,**

to share practices from other teachers, and to provide guidance on the Khan Academy product.

> Creating, moderating, and responding to questions on Edmodo.

In our interviews, teachers praised not only the existence of that support, but just as important, the quality and manner in which they received it.

First, the support was customized. In a pilot that involved 173 teachers across 47 schools, differences in technology and instructional capabilities were inevitable, so the NNU Doceō Center provided a menu of support options. For example, many schools initially struggled to increase their wireless bandwidth, creating what could have been a significant roadblock. To solve this problem, the NNU team worked with schools before the academic year began to ramp up their IT infrastructure and identify the devices they needed.

Second, the support was positive, teacher-centric, and timely. NNU coach Jesse Buchholz made a point to put the pilot schools first. "It was kind of an unwritten rule," he explained. "If we got an email about the pilot, it took priority. Teachers are accustomed to waiting a week or a month to get a problem resolved. I wanted teachers to feel that they were important." Teachers greatly appreciated this personal support. "NNU didn't just say, 'Here's how to do it,'" explained Julianne Russell of St. Joseph's Catholic School. "Instead, they said, 'How can I help?'"

Although the partners offered participants significant pedagogical freedom, they did impose some requirements, including participation in five activities to increase the depth of participants' learning. All participants were required to:

1. Have students use Khan Academy at least one hour a week (to ensure fidelity to the grant).
2. Have students take the Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) assessment three times throughout the pilot (to measure academic gains).⁷
3. Attend one professional development session at the beginning of the school year. In addition, the partners offered optional workshops throughout the school year to ensure teachers' improvement and to share lessons among participants.
4. Complete a weekly survey (to gather information about how teachers were using Khan Academy so that NNU could provide tailored support).

5. Participate in the web-based forum Edmodo to share challenges, technical problems, and successes.

A Different, but Achievable Kind of Leadership

Facilitating change in complex systems, such as K-12 education, requires a specific kind of leadership. Oftentimes, "command and control" tactics can exacerbate tensions and stifle individual creativity, while a more open and collaborative style can increase innovation and participants' sense of belonging.⁸

In Idaho, the partners and participants exhibited three leadership traits that were critical to the pilot's success.

WILLINGNESS TO TRY

For both educators and the partners, the pilot's unofficial mantras were "start simple" and "just start." By virtue of applying for the pilot, participating teachers had already demonstrated that they were more open to innovation than other teachers. Yet even those teachers got stuck and needed encouragement, which the partners constantly provided.

The partners also had to be willing to adjust. Frequent communication and attention to relationships allowed them to try different strategies to keep teachers on track.

WILLINGNESS TO PARTNER

– Partnership happened on two levels. First, teachers were routinely asked how (and for how long) they were using Khan Academy. NNU shared that information across the cohort, and Khan Academy made changes to the product as the pilot progressed.

continued on page 16

⁷ <https://www.nwea.org/assessments/map/>

⁸ Ronald Heifetz, "Leadership Without Easy Answers," Cambridge, Mass.: Harvard University Press, 1994; Ronald Heifetz, John Kania, and Mark Kramer, "Leading Boldly," Stanford Social Innovation Review, Winter 2004; Peter Senge, Hal Hamilton, and John Kania, "The Dawn of Systems Leadership," Stanford Social Innovation Review, Winter 2015

Second, the partnership between JKAF, Khan Academy, and NNU developed and matured. The partners came from three different sectors—technology, philanthropy, higher education—which all had different ways of operating. Their willingness to work together and trust one another, and their humility in understanding no one had a monopoly on all the answers, led to a unique coalition where strengths complemented one another.

DEEP AWARENESS OF THE CONTEXT

The partners demonstrated a deep awareness of what made Idaho unique, leading them to design a process that fit the specific context. For years, JKAF and NNU had immersed themselves in the Idaho education world, listening to people on the ground, and the pilot allowed the organizations to apply the lessons they had learned. "I was blown away by how steeped in the Idaho education system JKAF was," State Legislator Wendy Horman said. "They are the kind of people that want to know the system very well before they try to change it." Putting in the time and effort to understand the system may seem to contradict the "just try" ethos, but the partners knew that effective social innovators must strike a balance between understanding and doing.

Challenges

Year one of the pilot brought great hope for the future, but not without significant challenges. The main challenges to implementation included:

TECHNOLOGY

Many schools struggled to increase their wireless capacity and figure out how to manage new hardware, such as Chromebooks.

SHIFTS IN TEACHING PRACTICE

Even among the teachers who opted in to the pilot, personalized learning required a change in mind-set regarding the teacher's role and practice, which can be threatening and difficult to navigate.

SCHOOL LEADERSHIP

Some school leaders did not sufficiently support early-adopter teachers.

COMPETING PRIORITIES

The pilot took place as many schools were gearing up for the Idaho Core Standards, which competed for many teachers' energy and focus.

CHANGING PRODUCT

The fact that Khan Academy continually updated its product, often in response to teacher feedback, caused frustration among some teachers who were not used to technology changing as they used it.



Moving Forward

Educators and policymakers from around the country (and even the world) have taken notice of the Khan Academy pilot in Idaho. What can others learn from it?

First, the pilot offers an example of highly effective change management within an education system that is highly resistant to change. JKAF, Khan Academy, and NNU resisted the temptation to impose top-down change, choosing instead to generate grassroots excitement among educators based on a shared vision for personalized learning. While this approach may not be appropriate for every context, it was ideally suited for Idaho—and it likely will be for many other locations.

Second, the pilot demonstrated that many teachers and students will thrive if they are given the opportunity to personalize learning. We heard inspiring stories of previously disengaged students turning into classroom leaders and of teachers rediscovering their enthusiasm for their craft. Most of all, we recognized that a genuine sense of hope existed in a heavily rural state with relatively low school funding. In addition to these anecdotes, we also have noted early results that indicate a correlation between Khan Academy usage and higher-than-expected student achievement (as measured by the NWEA MAP assessment—see Appendix A).

Most of all, we recognized that
a genuine sense of hope existed
in a heavily rural state with
relatively low school funding.



To be sure, questions remain. Will parents of students in the pilot demand continued personalized learning for their children? Are more Idaho teachers willing to adopt personalized learning, or has the saturation point been reached? Will academic gains be sustained year after year? Will teachers and students continue to refine their use of personalized learning tools? These important questions merit serious analysis in the years to come.

We asked Meredith Gilstrap, the Post Falls High School math teacher we quoted at the beginning of this report, if she believed that 2013–2014 was the right time to adopt Khan Academy.

"I think so," she said, "because it was already about 20 years too late. If you insist on waiting until everyone is on board, there is never a right time.

But we had enough research on the books to suggest that personalized learning can be more effective. It's harder, sure, but if we're serious about teaching and learning, that's the way to go."

For Idahoans, the Khan Academy pilot is worth celebrating, but it is also worth reflecting upon its lessons for future years. Educators and other stakeholders outside Idaho can think about the pilot's five principles of adoption and ask whether they make sense in their own contexts. Most important, educators and policymakers must continue to explore what works when educating our children. The technology for personalized learning is catching up to the vision, and tools like Khan Academy are giving teachers and students new opportunities to learn that were simply not possible even a few years ago.

The Idaho pilot is one example of how personalized learning can be adopted across a state. Now the task for the rest of us is to take stock of Idaho's lessons, refine them for other contexts, and share those lessons with everyone who strives to help our children succeed.

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Reflecting on the importance of pursuing this vision collaboratively, Sal Khan said,

"In Idaho and beyond, we want personalized learning to be teacher-, student-, and parent-led. Frankly, we don't have all the answers, and we want to work with the entire ecosystem to figure out what's possible, and to give a lot of autonomy for the individual actors to come up with their own approaches."

Appendix A: Academic Observations from the Khan Academy Pilot

The Khan Academy pilot was designed primarily to introduce personalized learning in a large number of Idaho classrooms. However, the pilot also afforded an opportunity to analyze the relationships between usage of Khan Academy and academic outcomes. The purpose of this analysis was not to assess Khan Academy's ultimate effectiveness as a learning tool. Indeed, such an analysis would be impossible, given the different ways in which Khan Academy was used and the changes Khan Academy made to its product throughout the pilot year.

As a condition of participation in the pilot, teachers had their students take the NWEA MAP assessment three times during the pilot year: in the fall (as a baseline), in the winter (as a midpoint assessment), and in the spring (as a final assessment). Using that data, the NNU Doceō Center and Khan Academy conducted the analysis that follows. The analysis includes data from 5,309 students from third through eighth grade who took both fall and spring MAP assessments (see Figure 1).

In short, the analysis shows very positive correlations between usage of Khan Academy and academic progress, and has compelled the partners to continue supporting personalized learning (and Khan Academy in particular) to increase student achievement in Idaho.

DEFINITIONS

Mission: Any learner using Khan Academy can choose to go on a math "mission," which is a personalized journey through a curated set of grade-level or subject-level content. Grade-level missions provide comprehensive coverage over the Common Core standards, and most missions also include core prerequisites.

MAP Assessment: The Measures of Academic Progress (MAP) assessment is a student assessment created by the Northwest Evaluation Association (NWEA). By adapting to each student's learning level, it pinpoints what each student "knows and is ready to learn" within 24 hours of taking the assessment.



WHO IS INCLUDED IN THIS ANALYSIS

While 10,500 students in grades one-12 participated in the pilot, the analysis in this appendix includes data from 5,309 of those students in grades three through eight. Some students' data were excluded from the analysis because:

- > The students did not take both the fall and spring MAP assessment
- > The students' MAP results could not be linked to a Khan Academy account
- > The students answered a minimum of 50 questions in less than 20 minutes on the MAP assessment. Data from NWEA suggest that students who progress through the MAP assessment at this rate are not taking the assessment seriously, and therefore their results are not reflective of their knowledge
- > The students were outside of grades three through eight, which are the grade levels for which Khan Academy has missions that comprehensively covered math standards. Since this pilot, Khan Academy has built out missions for content covered in K-12th grade

Figure 1: Distribution of Students Included in the Analysis

Thus, the analysis below includes 5,309 students in the third through eighth grade.

ANALYSIS

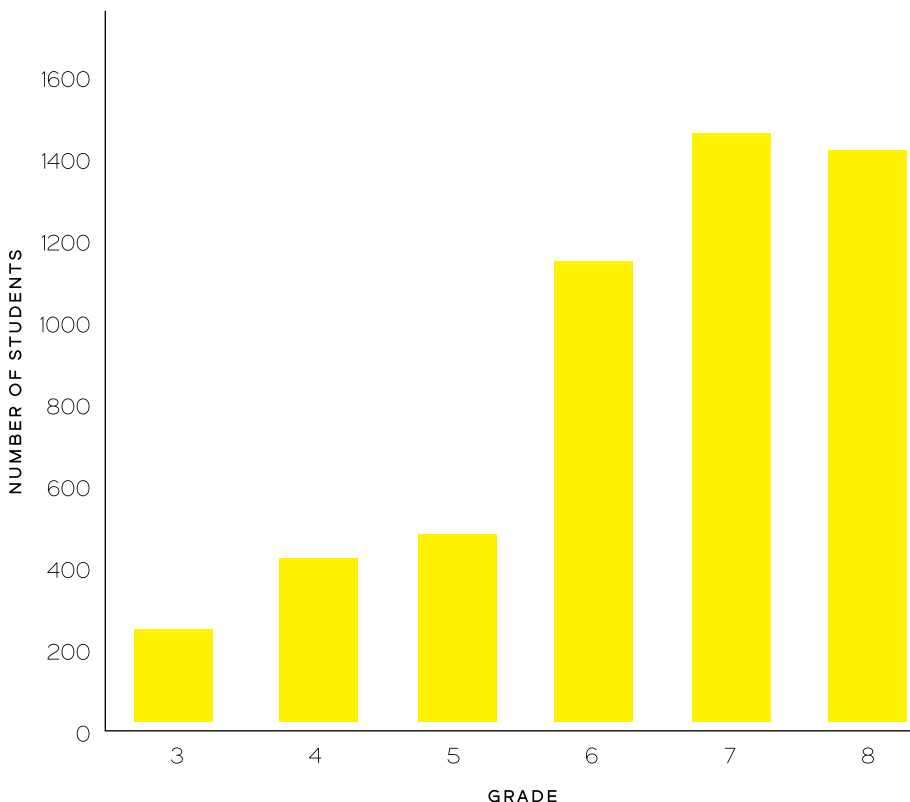
There is a positive correlation between pilot students' usage of Khan Academy and their MAP scores.

We can see this by comparing students' spring MAP percentile with the percentage of the grade-level mission they completed during the school year (see Figure 2).

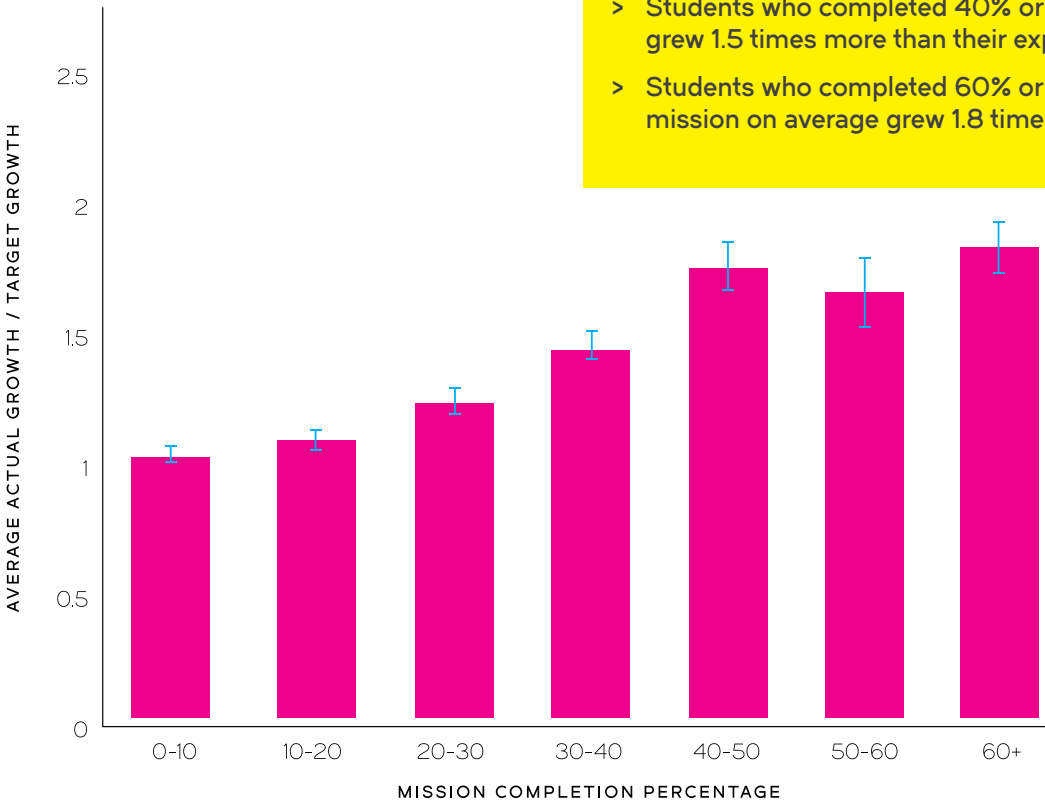
Figure 2: Mission Completion vs. Spring Percentile

It is perhaps not surprising that students with higher mission completion tend to score very high on the spring MAP assessment, since high-achieving students are more likely to have higher mission completion in the first place. Thus, we also want to ask, do students who spend more time on Khan Academy also tend to improve more during the year?

1. NUMBER OF STUDENTS BY GRADE LEVEL

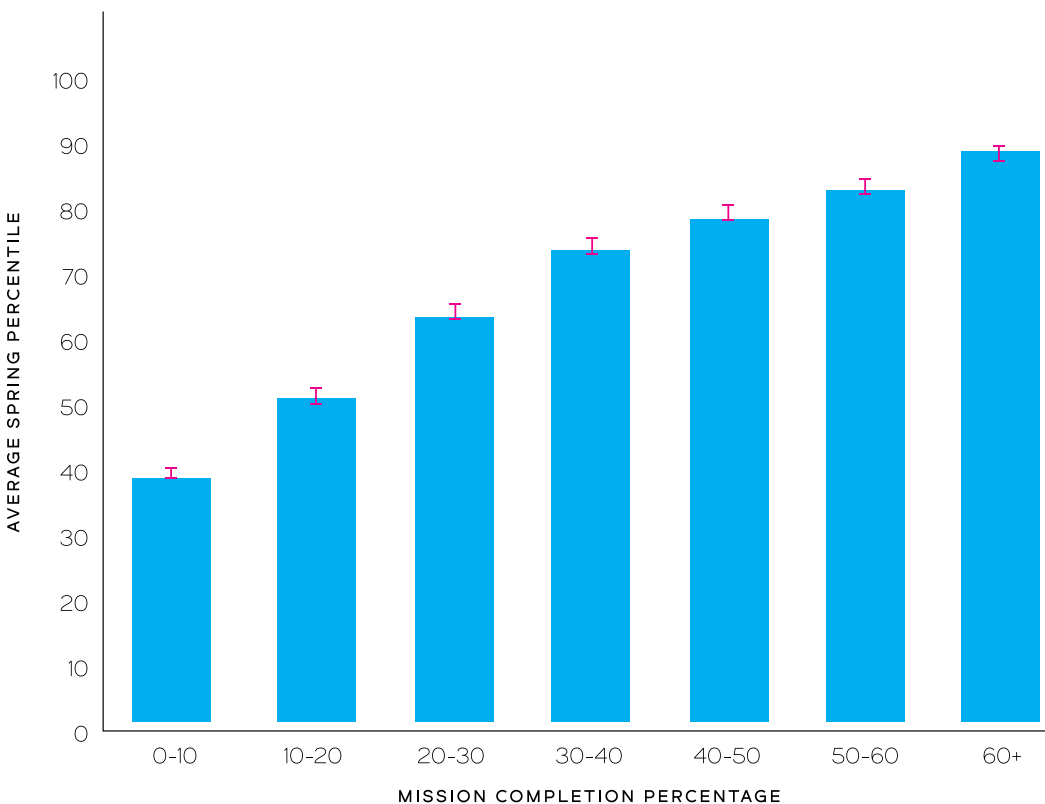


MISSION COMPLETION VS. GROWTH



- > Students who completed 0-10% of their mission on average grew as expected; these students barely used Khan Academy.
- > Students who completed 40% or more of their mission on average grew 1.5 times more than their expected growth in one year.
- > Students who completed 60% or more of their mission on average grew 1.8 times their expected growth in one year.

2. MISSION COMPLETION VS. SPRING PERCENTILE



Not only do students who complete a significant portion of their mission tend to score higher, they also tend to improve more during the year.

For each student, a "target growth" is calculated in the fall, based upon nationwide norms for his or her fall percentile and grade level. If we compare a student's mission completion with his or her growth relative to this target growth, we see that not only do students who complete a significant portion of their mission tend to score higher, they also tend to improve more during the year. Figure 2 shows an example of this by analyzing the 5,309 third through eighth graders for whom both fall and spring test scores were available. Among this sample:

- > **Students who completed 0-10% of their mission on average grew as expected; these students barely used Khan Academy.**
- > **Students who completed 40% or more of their mission on average grew 1.5 times more than their expected growth in one year.**
- > **Students who completed 60% or more of their mission on average grew 1.8 times their expected growth in one year.**

A NOTE ON THIS ANALYSIS

We caution readers against drawing definitive conclusions from this analysis, as there are a number of potential confounding factors, such as the various ways teachers used Khan Academy in their classrooms (e.g., to accelerate or fill gaps based on the needs of each student, to supplement the curriculum, to catch up students who have missed class, to preteach in a "flipped classroom" model, or as a primary instructional resource). The analysis above merely present statements of correlation, not causation.

Other metrics of activity, such as the total number of skills that a student has earned mastery of, are also highly correlated with growth. However, when combining multiple measures of activity on Khan Academy, we see that mission progress is by far the strongest indicator of success during the year. This suggests that focusing students on the material needed to achieve their learning objective is a major key to success. This is the purpose of missions. For example, an eighth grade-level student can work on the eighth grade mission, or an eighth grade student needing remediation can use the Arithmetic mission.

Appendix B: Overview of the Khan Academy in Idaho Pilot

October 2012: JKAF, Khan Academy, and NNU host a public two-day professional development workshop to introduce Khan Academy to Idaho teachers. Because of the overwhelmingly positive response from teachers who attended the workshop, JKAF and the NNU Doceõ Center announce a competitive grant to pilot Khan Academy in Idaho classrooms.

Winter 2012–2013: Seventy-five teams of teachers, principals, and local technical support personnel submit applications. A review panel selects 47 K–12 schools from 33 school districts to participate in the pilot. Grants awarded total \$1.5 million, with maximum grants of \$50,000.

April 2013: JKAF, Khan Academy, and NNU convene all grantees to orient them to the pilot and help them build their customized implementation plans.

Summer and Early Fall 2013: Khan Academy and NNU offer regional, hands-on professional development workshops to all pilot teachers.

Beginning Fall 2013: All participating classrooms take the NWEA MAP assessment in the fall, winter, and spring.¹⁰

August 2013–May 2013: One hundred seventy-three teachers and 10,500 students begin participating in the pilot. At the end of the pilot year, even more than the original 173 teachers consider themselves part of the pilot by virtue of receiving support from NNU or using hardware originally purchased for other classrooms. In the first few months of the pilot, NNU provides intense technological and pedagogical support. Ongoing pedagogical support continues throughout the year through on-the-ground support (from NNU coaches) and virtual support (made available by Khan Academy).

May 2014: NNU evaluates participation, readiness, and student growth to select 43 "star teachers" from the first-year participants. These teachers and their administrators

are brought together for a convening ceremony in May to celebrate their success and encourage them to become leaders in their communities. These teachers are selected to become mentors to two teachers in their building or district who want to use Khan Academy. Each mentor applies for a second-year grant to supply mentee teachers with technology and a stipend for the mentoring process. Grants awarded in year two total \$1.7 million, with maximum grants of \$50,000.

Note: In addition to the 10,500 students in the K–12 system (including private, traditional, alternative, and charter schools), 23 teachers and approximately 1,500 students from the Idaho Department of Corrections education system participated. This case study focuses on those in the K–12 system.

Note: Although Khan Academy is completely free, there were costs associated with the first year of this pilot, including event planning for professional development workshops, and coaching and research support from the NNU Doceõ Center staff. The total cost of these ancillary expenses was approximately \$450,000 for the first year of the pilot.

¹⁰ <https://www.nwea.org/assessments/map/>

For questions about the Khan Academy pilot, please contact Eric Kellerer, director of the NNU Doceō Center. In the spirit of exchanging knowledge, Eric would be happy to speak with any interested party about the pilot's activities, timelines, lessons learned, and resources required. Contact Eric at 208-467-8350 or ejkellerer@nnu.edu.

