By Cate Sommervold and Melissa Goodwin

Never Too Late to Learn

Find out how one professional development program uses low-pressure coaching and real-world practice to inspire teachers to embrace new technologies so their students will follow their lead.

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We live in South Dakota, USA, where extremes are the norm. Our temperatures swing from -40 degrees Fahrenheit in the winter to 105 in the summer. We have hills and beautiful rock formations on one side of the state and vast prairies across the other.

Schools in South Dakota are no different. We have urban districts with 20,000 students and rural districts with less than 200. Some schools have gone one-to-one, and other schools have one computer cart for two grade levels. Some teachers refuse to use their computers for anything but email, and others are incorporating web 2.0 tools into their project-based learning curricula. But one thing that is consistent across the board is the need for technology-related professional development that is aligned with and embedded in the curriculum.

The Basic Program

From 2007 through 2011, we had the opportunity to work with many excellent teachers through a Title IID grant-funded professional development program called Success Through Assessment and Technology in the 21st Century, also known as STAT21 and Project Integrate. Each year, a cohort of 40 teachers participated in our yearlong course focused on assessment and best-practice technology integration.

We began each cohort with a kickoff meeting, where we gave overviews on topics such as digital age skills and formative assessment and outlined what they would be doing and learning over the course of the year. They would:

- Analyze data
- Choose a content standard based on data analysis
- Perform a pretest on the chosen content standard
- Meet with a cognitive coach and technology integration specialist three times throughout the year
- Participate in classes focusing on assessment and technology integration
- Integrate technology into two lesson plans for the chosen content standard
- Perform a posttest on the selected content standard
- Capture all of this information in an e-portfolio

Our process is actually quite simple. Each teacher uses baseline data to identify a standard that is frequently unmet in his/her classroom and then creates two lesson plans infused with digital age skills and tools to increase engagement in that area. During the first lesson, teachers present the new material and use formative assessment to measure student understanding and inform teaching. If students understand the material, the teacher moves forward as planned. If they don't, she tweaks the next lesson to reteach and review.

This strategy works for all teachers, regardless of how long they have been teaching or how comfortable they are with technology. Veteran and new teachers alike can use this system to increase engagement and achievement in their classrooms.

Success Stories

"It was either: Learn how to do this or retire," said Adlena Ecklein, a third grade teacher in a small rural school. She was only half-joking. She had been teaching the same way for 40 years, but she recognized the need to learn new tools to engage her digital age learners.

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When we began working together, Ecklein had one desktop computer in her classroom and the desire to get students interested in the concept of probability. She participated in our program for three years, and by the end of the third year, she had badgered her administrator into getting a portable interactive whiteboard and was creating projects that engaged the whole community.

One of the reading standards that Ecklein targeted to improve (based on her data analysis) was the skill of making predictions. This standard went hand in hand with probability and reading graphs, so she came up with a plan to improve them all. She asked her students to look at their small town, find out what it used to look like, and make predictions about what might happen there in the future. The third graders then made recommendations about how they could affect the course of the future. They walked through town and took digital pictures of various places. They went through archives and asked older community members to help them find old pictures of the same locations. Finally, they created presentations with pictures and graphs showing side-by-side comparisons of the demographics.

"The students went way beyond what I could have ever imagined," Ecklein said.

On the other end of the spectrum is Jacki Kooistra, a young science teacher in an alternative high school. One of the false assumptions surrounding technology integration is that, because a teacher is from Generation X, Y, or Z, she is a digital native who intuitively understands how to integrate technology into her lessons. We have met teachers in their 20s and 30s who text and use Facebook on a regular basis but don't know how to translate their technology skills to the classroom. Integrating technology effectively into the curriculum needs to be modeled, explicitly taught, and coached.

Kooistra joined our project because she wanted the stipend and the college credit. She also knew she needed to do something extra to engage the at-risk youth she worked with. She created and administered a pretest to all of her students. Much to her surprise, the topic her students scored lowest in was genetics, which she had just finished teaching! With coaching and tech integration input, she came up with a new plan to engage her students.

High school science students need to learn the fundamentals of genetics—what a gene is and how physical characteristics are transferred. Kooistra noticed two things about the lesson she had previously taught on genetics:

- She was focusing on the concept and forgot to emphasize the correct vocabulary, so the terms on the test were different from the terms the students used in class.
- Her students were almost all visual learners, but she had been lecturing to them—telling them instead of showing them.

Through coaching, we helped Kooistra reflect on her teaching strategies and come up with a way to deliver the correct information in a style that would engage the students. She used what she had already taught the students as a starting point for her lesson, then scaffolded from there, focusing on higher-order thinking strategies.

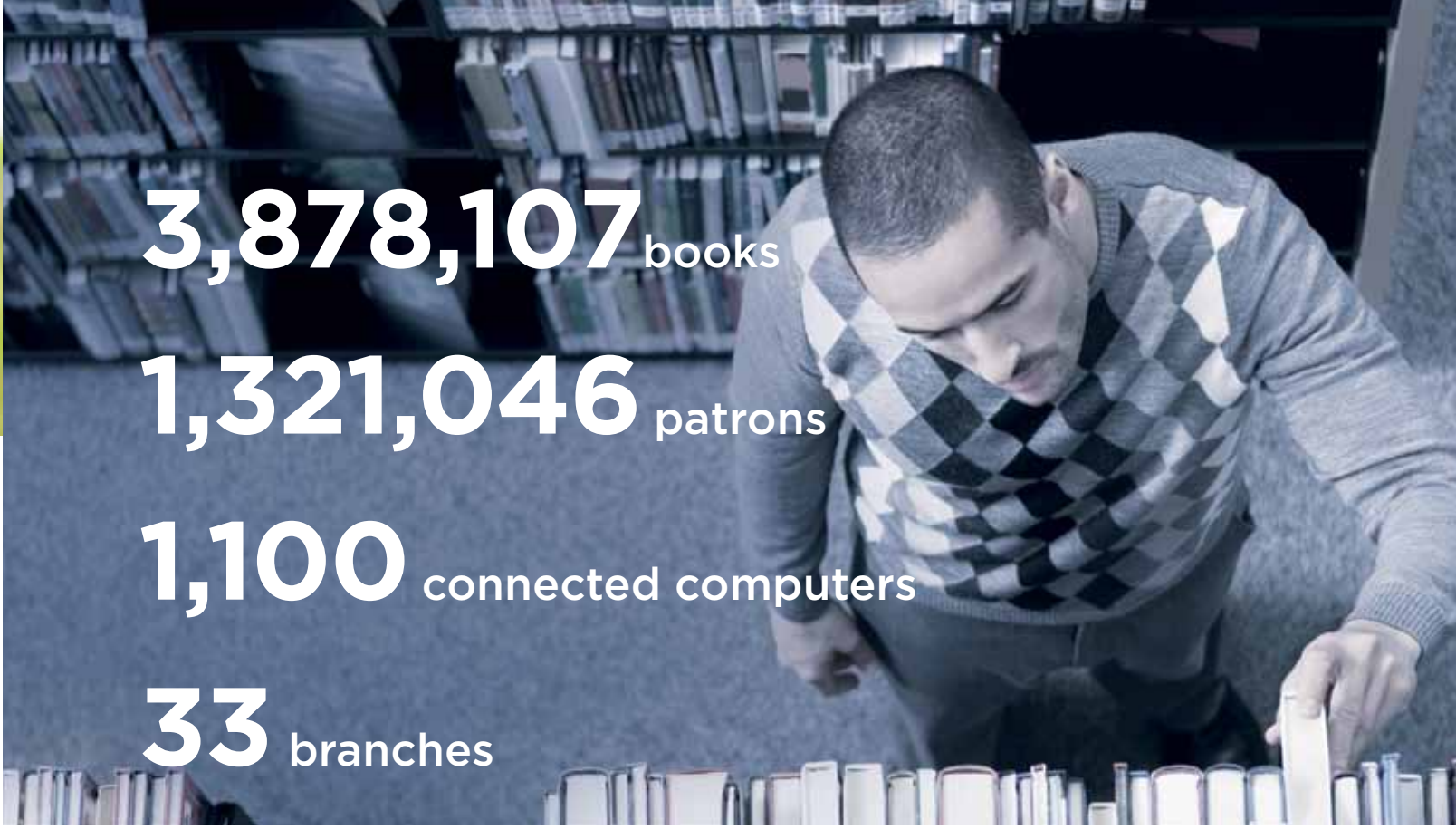
Her students used digital cameras and interactive whiteboard software to put together family scrapbooks. They took digital pictures of their own physical characteristics and divided the pictures into categories, such as eyes, ears, foreheads, and hairlines with and without widow's peaks. They put each group of images into its own folder on a shared space.

Next, each drew the characteristics of an imaginary mate out of a beaker. Using their knowledge of genetics as predictors, the students made family scrapbooks featuring their future children and grandchildren. As an extension of this activity, they were randomly assigned a genetic disorder and asked to write a first-person account as a parent of someone with that particular disorder.

Posttest results demonstrated that they understood the lesson and could easily explain the concepts to others.

Assistance, Reflection, and Assessment

We believe our program has been successful because of one-on-one coaching, integration, and real-world application. We treated the teachers in the program as professionals and tailored the technology workshops specifically to classroom use and strategies.



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Our mantra was, "It's OK to play! You are not going to break anything."

The goal of the coaching sessions was to allow time for reflection and planning. Most teachers already know what they can do to increase engagement in their classrooms, but being able to talk it through with a colleague can really get things rolling. All of the participating teachers mentioned that the coaching component of the grant was essential to increasing their comfort with and understanding of the process.

The coaching and integration sessions also held teachers to a higher level of accountability, which they said was helpful. The technology integration specialist helped teachers come up with ways to implement technology that supported their lesson plan goals. Often the teachers wanted the coach or integrationist in the room when they were implementing the new technology or strategy. Having the support of a colleague at the ready helped to alleviate any anxiety surrounding the task at hand.

It's OK to Play

Most of us grew up in individualized learning environments. We were taught to hide our papers, not talk to others during class, and absorb information like sponges. We were rewarded for being quiet and regurgitating the information exactly the way our teachers wanted it. These mental models are so ingrained in us that it is hard to break away and try a new approach.

We have a thing or two to learn from our students. Kids often learn new technologies by playing with them. So, in our professional development classes, we reintroduced the concept of play to teachers. Our mantra was, "It's OK to play! You are not going to break anything." (Well, sometimes we did break and lose things, but that was a very rare occurrence and part of the learning curve.)

We would often sit next to someone at the computer and say, "Let's just see what happens if you do this." Even if we knew what the result would be, we wanted to make sure they knew it was OK to not always know the answer. You need to play with the technology and find out its parameters to really learn how to use it. Kids do this instinctively, as they don't have any ego about knowing or not knowing how to use a gadget, and they aren't afraid to just give it a go.

That said, it is essential to know exactly what you are measuring and let your students know too. If you have ever graded an iMovie with 40,000 transitions, images with the iStockphoto watermark still on them, and a soundtrack of the latest Jay-Z hits, you know what we are talking about. Kids get so excited about finally being able to apply technology that they forget they are actually supposed to be learning something. They shouldn't spend two hours picking out a font. We need to see products that demonstrate learning. A good rubric that carefully outlines the content expectations will save you from having to tell a student who spent 40 hours on his opus that he earned a big fat D.

Take It Slow

We know that teachers don't have time to learn how to use all the new technologies out there, so we encouraged them to start with one new technology in one lesson plan. While we were there for support, most teachers preferred to fly solo. What we found was that once teachers became familiar with one technology application (such as electronic whiteboard or digital storytelling software) and learned it well, they were more apt to try another technology. Learning too many new things at once becomes overwhelming and confusing. Start slowly and start small, but start.

You will be surprised at how well your students will respond. Students are always willing helpers if something goes awry. One teacher in our cohort would purposely profess ignorance of the whiteboard setup just to allow her students the opportunity to come up to the front of the class and set it up each day. They loved the opportunity to show her something they knew how to do. So for those who are wary of trying a technology for fear that it might not work, a perfect plan B may be letting the students show each other (and you) how it works.

If we really want to move from being the sage on the stage to the guide on the side, we have to be willing to take some risks.

And if things do go awry, it's OK. It happens to us all. To paraphrase Randy Nelson, the core skill of an innovator is error recovery, not failure avoidance. If we really want to move from being the sage on the stage to the guide on the side, we have to be willing to take some risks. Believe us—if our wonderful 40-year veterans in the wild state of South Dakota can do it, you can too.

Resources

Jackie Kooistra's students' work:
http://jackikooistra.wikispaces.com/home
http://salem-3rdgradeproject.wikispaces.com/home
Project Integrate wiki: http://projectintegrate.wikispaces.com
STAT21 wiki: http://stat21.wikispaces.com

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