

# TECHNOLOGY INFUSION AT INTERNATIONAL SCHOOL OF BEIJING

Chris Schuessler December 27, 2018



**ISB students benefit from a progressive approach to building tech tools into all aspects of the curriculum.**

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A few years ago, the International School of Beijing set about revamping its approach to student learning. Like many educational institutions, they realized that they needed to create a new framework for implementing a standards-based curriculum that would better prepare students for an unpredictable, tech-driven future.

The result was Learning21@ISB, or L21, a unique set of guidelines that inform the curriculum across all grades and subject areas. There are six elements to L21: Project Learning, Technology Infusion, Integrated Learning, Experiential Learning, Social and Emotional Learning, and Comprehensive Assessment. We've previously [written about](#) the 'integrated learning' aspect of L21; today, we're exploring ISB's efforts to infuse technology into all areas of learning at the school.

Clint Hamada, ISB's Education Technology Coordinator, works with the school's faculty to build tech tools and digital concepts into their lesson plans and assessments. He's energized by the school's emphasis on exploring and experimenting with new learning strategies. "There is support for these kinds of ideas from the top down, and that motivates me and the rest of the faculty to take risks. If we can show that our ideas will have a positive impact, we'll go for it."

Throughout all disciplines and in every grade, faculty are encouraged to utilize tech tools to help spur inquiry, nurture critical thinking and empower students to design and lead their own projects. It's this emphasis on 'design' that truly sets ISB apart.

## ROBOTICS COURSE

Tyler Beatty, a high school science teacher at ISB, believes in the importance of teaching his students to think like designers. "We always look for opportunities to push our students into designing things for themselves. It's an ideal way to help them grasp the concepts behind the subjects we're learning."

Beatty teaches a robotics course at the school in which students plan and manufacture their own designs. "In robotics, there are three categories of design. There's the planning and manufacturing side, which is very conceptual. There's the mechanics side of it, which is about the motion and the strength of the materials. And then there's the control system, the electrical aspect that gives the robot movement. In our course, we mostly focus on the manufacturing aspect. We rely a lot on our programming course to give students the skills to create sequences, sub procedures and functions. The interface can be tricky, but it gives them this real world experience of using skills from a lot of different disciplines in creating a single project."

Beatty and his students utilize 3D CAD technology to design, program and simulate their creations. "With this software, we're able to employ all kinds of motions and linkages. We're able to do laser cutting and 3D printing in the classroom. They're learning how motors work, how circuits work. The tools and resources that are available here for our students are truly incredible."

These tools are a reflection of the priority being placed on preparing students to master these kinds of design and engineering tasks. The leadership of the school is dedicated to building these experiential learning opportunities into the curriculum. "Through these experiences, our students will have a good foundation to pursue career paths in most STEM fields."

“Our approach is different by design,” says ISB’s Director of Learning, Stacy Stephens. “We developed L21 to adapt to changing work and social environments, and these are mostly changing due to the rapid evolution of technology. A key component of staying focused on that goal is giving our faculty the resources and the freedom to explore and engage with these new innovations. Experiential learning leads to inquiry – it puts critical thinking into practice. This builds a solid foundation for our standards curriculum.”

Beatty travels with his students to two competitions a year to present their robot creations. “We had a small team go to Seoul a few weeks ago to compete. It’s a young group, they didn’t win any gold medals or anything, but it’s great to have the competition aspect to the course to spur them on and get them motivated.”

The process of collaboration through all disciplines at ISB is one of the core goals of L21. “Everyone feels very connected,” says Jeff Leyman, Beatty’s counterpart in the middle school. “Our units are purposeful and well-planned, and everything links together very well. Clint and Stacy do a really nice job with facilitating that.”

## **ANIMATRONIC PETTING ZOO**

One project Leyman and his 8<sup>th</sup> grade students have had a lot of fun with is an animatronic petting zoo. “This is something I’ve wanted to do for a long time, but I’ve never had the resources. And here at ISB, I do.”

His students went through a design cycle to learn how to create their robot animals. “This shares a lot of ideas and concepts with Tyler’s robotics course. In the same way, we want to give our students ownership over a project in which they can do some real-world implementation of what they’re learning.”

When his students completed their projects, they hosted a group of 1<sup>st</sup> graders and gave them a tour of their new ‘petting zoo’. The students were able to interact with the creations and ask questions about how they were made.

“My students surprise me everyday,” says Leyman. “Watching my 8<sup>th</sup> grade students interact with the 1<sup>st</sup> graders in such a mature manner was so satisfying. These kids who can be crazy and rambunctious instantly became nurturers and leaders. They were very excited to share what they’d learned. It was such a positive experience for everyone.”

After the ‘petting zoo’ visit, Leyman held a couple of wrap-up classes for reflection on what they’d created and learned. The students also took high-quality pictures and videos of their projects and showcased them on ISB’s blog. They crafted blog posts to describe the creation process.

“Everyone at ISB can see their creations and read about their process. We also share them with other middle schools around the world. It’s a good lesson in using images, blog posts and social media to create engagement around something they’re passionate about. That’s an important aspect of learning how to maximize the benefits of technology.”

Hamada also believes strongly in demonstrating the process of learning. “When students share their journey of creation, it leads to opportunities for the kinds of transformational experiences that every educator wants to facilitate,” says Hamada. “Students put their ideas and intentions on display in an engaging, exciting way so that other students, both at ISB and at other schools, can grasp them more easily and build on them more effectively.”

## **BUILDING A DESIGN TOOLKIT**

The philosophy behind integrating tech and design elements into the core curriculum centers on arming ISB students with a comprehensive toolkit of skills and habits that are necessary for any creative industry. “Design is about learning to solve problems in a systematic way,” says Leyman. “We’re giving our students opportunities to learn that process first-hand. Because we don’t know what the world will be like in five, ten, twenty years. We *do* know there will be a lot more automation and a lot more importance placed on critical thinking and problem solving skills. We know that if we arm our students with the ability to solve problems and work together in a fruitful, collaborative way, they’ll be ready for that world.”

The school’s curriculum leaders plan to continue to find ways to push their students to be designers. Next year, they

will introduce a 'Think Like a Designer' course, in which students will focus on the creative, entrepreneurial aspects of design.

Students will be able to put their ideas into practice with ISB's soon-to-be-opened industry-quality design center. The center will be stocked with state-of-the-art design tools. "This is almost like a modern-day vocational class for tech," says Hamada. "When you go to any workplace, you'll be ready."

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