Building Future Maker Spaces for K-12 Schools

Weixun Cao, Ph.D.
Founder of BitLab
wxcao@ieee.org
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WELCOME TO 21 CENTURY

感知中国 呼吸梦想
Maker’s Steps

Stone (millions) Tools (thousands) Machine (hundreds) Computer (tens) Maker (years)

Daniel H. Pink: 《A Whole New Mind》，2005
"The reason that Apple is able to create products like iPad is because we always try to be at the intersection of technology and liberal arts, to be able to get the best of both."

- Steve Jobs, 2010 iPad launch

“It’s in Apple’s DNA that technology alone is not enough. It’s technology married with liberal arts, married with the humanities that yields the results that make our hearts sing.”

- Steve Jobs, 2011 iPad-2 launch
The Brain Secret for Education
(Dr. Roger Sperry, Nobel Prize in Physiology and Medicine in 1981)
A Whole New Mind

“The future belongs to a different kind of person with a different kind of mind: artists, inventors, storytellers—creative and holistic ‘right brain’ thinkers.”

- Daniel H. Pink: 《全新思维》, 2005
Maker: Masters of the Future
Today’s D.I.Y. Is Tomorrow’s “Made in America”.

– President Obama, 6/18/2014
The Makers in China

“Everyone to be an entrepreneur and innovator”
- Chinese Prime Minister Keqiang Li
3/2015
New Education Standard

Common Core State Standards

http://www.corestandards.org/

- Creativity & Innovation
- Critical Thinking & Problem Solving
- Collaboration
- Communication and Information Collection

Because

- 65% of today’s graduate students will be applying for jobs that haven’t been invented yet.
- Economy places value on broad knowledge and skills.
Chinese Education Reform

《National Outline for Medium and Long-term Education Reform and Development》
2010-2020
To change from caring about “Cold Score” to “Living Person”
BitLab at Two Nations on the Same Day

National Science Week
5/16/2015, Peking/China
“Smart Mongolian Yurt”
Chinese Vice Premier Liu Yandong

Maker Faire USA
5/16/2015, San Mateo/USA
BitLab’s Young Makers
Ultra Competitive School Systems
A Bloody fight for 100 days in order to enter the best universities

Source: 觀察者 (2014.2.27), http://www.guancha.cn/Education/2014_02_27_209344_s.shtml

School ceremony cheers 12th graders on for their final exam and the 100 day preparation period.
Ultra Competitive School Systems

“I’d rather take 100 days of suffering in order to have no regrets in the future”
High walls to prevent stressed students from suiciding

Ceremony in the High School
Live Show and Ceremony for the Coming 100-day Bloody Battle

Source: 观察者 (2014.2.27), http://www.guancha.cn/Education/2014_02_27_209344_s.shtml

School ceremony cheers 12\textsuperscript{th} graders on for their final exam and the 100 day preparation period.
Maker Space: BitLab
A Classroom from Confucius to Avatar

**Ancient:** 551 B.C. – 479 B.C.
Source: film Confucius, 2010

**Current Classroom in China**

**Future:** Robot & Space Age
Source: film Avatar, 2010

BitLab: Thinking is colorful and transparent.
Growth of BitLabs in China

Year


Schools

2 5 10 32 63 119 216
Map of BitLabs in China

200+ BitLabs over 20 Provinces
BitLab’s Teaching Kits
Building the Bridge between Life and Classroom

http://m.c.lnkd.licdn.com/mpr/mpr/AAEAAQAAAAAAAAQsAAAAJGEzODc5NTk3LTJiOWItNDUxMy04MjRhLT
A5NTc1ZTImOTY1OQ.png
BitLab’s Teaching Model
The 3 Primary Colors: RGB

Passion

Bright Kids

Product

Project
Inspire & Create

Inventor’s Story

Design

Presentation

Creation
Electronic Building Blocks

The Sound Recorder
- Speaker
- Voice Recorder Module
- MIC
- Battery Pack
- Control Port

Depress button to record 8-seconds of voice.

Methods for Playing the Recorded Sounds
- Motion Sensor
- Sound Sensor
- Infrared Receiver
- Infrared Transmitter
- Light Sensor
- Manual Operation by Push Button

3-wire to 2-wire connector
Student Creations
Student’s Demo

Combination of Technology, Art and Design

Disco Dan
by Kelly and Alec

His name is Disco Dan. He is a baby and he is sucking on his thingy. It lights up and moves around. He has a mind of his own really. He talks. It is for any one who likes to Disco. He moves his tails to the Disco music. If you are going to have a Disco party, he is probably one of the best to get. He is very social. Unless you are rich, he would just try and steal your money. You need it to have a Disco party. You use it at a Disco party or any party. You turn off the lights and have flashy things. It maybe annoying because it sometimes talks. Its special features are a funny face, it talks and it lights up. It has a built-in DJ.

We liked Building the BitLab invention. It was difficult to put the lights in. We learned the history of the light bulb.

D. D. The Disco Dog
by Dave and Elika

We made a dog because me and Dave both like dogs. We call him D.D. the Disco Dog. He has sound-activated lights. We call him that because it lights up different colors at different times. You can use it when you are bored. He’s fun for all ages. You can use it anywhere and it is water-proof. You can put him in a swimming pool. He comes in different sizes. Thank you for listening.

We liked putting the circuit together and snapping the pieces together. We wish we could do this all the time. We had a tough time fixing the neck in. We learned about Thomas Edison and about ganglion and more body parts. We also learned that we have to pay attention on where we put the wires.
Results

The progress degree of the ten abilities in Nanhu Primary School
One Semester: 15 lessons (45 minutes each), Grades 3-4
Lessons at McAuliffe School

Multi-Method Activated Voice Memo
Grade: 4
32 Students
16 teams with 2 student each
Any Questions?