Next Generation STEM Learning for All – Monday, November 9, 2015

### Empowering High School Students to Invent the Future with STEM

Dr. Shawn S. Jordan @shawnsjordan Assistant Professor of Engineering Education Arizona State University



This material is based upon work supported by the National Science Foundation under Grant Nos. ENG-1351728, ENG-1519339, ENG-1232772, ENG-1329321, EHR-1259356, and IIP-1514515



Excessive testing does not prepare students to invent the future

# Empower students with Making

Maker Faire

sci

## Make: Wearable electronics for pets

printed button, this succes option for any dog who wants to be seen a also features ten programmable and color changing LEDs. Like the Light Up at Night Pet Collar, it can be made small enough for a Chihuahua or big enough for a Great

Dane.

## Fostering a culture of additive innovation



1. inspiring community



4. sharing artifacts

2. sharing & learning recipes



3. iterating on designs



## 2. Embed real-world project-based learning

HIGH TORQUE

30

10

## Nake App-controlled sprinkler system

## 3. Connect STEAM and culture

#### **STEAM Machines Camp @ Navajo Nation**

## Recommendation

Culturally-contextualized project-based curriculum that empowers all students to make a difference in their communities

ake

## Impact on Students

- 1. Helping students apply STEM to make a difference in their communities
- 2. Broadening pathways for underrepresented minorities in STEM
  - Developing both creative confidence to take risks and technical proficiency in using rapid prototyping tools
  - 4. Engaging students in real-world problems that matter

# Inspiring a generation of STEM innovators

 Problem: Excessive testing does not prepare students to invent the future

 Recommendation: Create culturallycontextualized project-based curriculum that empowers all students to make a difference in their communities Next Generation STEM Learning for All – Monday, November 9, 2015

### Empowering High School Students to Invent the Future with STEM

Dr. Shawn S. Jordan @shawnsjordan Assistant Professor of Engineering Education Arizona State University



This material is based upon work supported by the National Science Foundation under Grant Nos. ENG-1351728, ENG-1519339, ENG-1232772, ENG-1329321, EHR-1259356, and IIP-1514515

