Tech-Ready Teachers

A National Consortium of Teacher Preparation Programs Certifying Teacher Readiness to Use Technology Effectively

Rick West, Brigham Young University
“I want to be like you!”
Gather around for a story...
Technology Skills for Teachers in Training

- 2012
- One class, 1 credit
- 15+ potential majors, different abilities & needs
- Taught by different departments
- Required prerequisite skills
- How do we provide personalized learning opportunities?
- How do we provide extension beyond the course?
How Valuable are Transcripts?

• What does 200 mean? Is it equal to or less difficult than a 400-level class? What about 400-level Programming for Humanities course? Is it half of a level 400 CS class?

• Course name is vague: what skills are covered?

• What does the grade B mean?
  – Average on everything?
  – Did really well on some things and poorly on others?
    • If so, what things did they do well on?

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Name</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 200</td>
<td>Web Programming</td>
<td>B</td>
</tr>
</tbody>
</table>
“Professor, my principal wants to have me lead on a technology initiative. Can you email him and tell him what my technology skills are?”
Then I discovered open badges...
Earn 7 Badges (Red required, blue options)

- Digital Sources
  - Science tools (Logger Pro, Chemlab, Biodigital Human, Physion, etc.)
- Mobile Learning
  - PE and Health tools (Studiocode, health tracking, Ubersense)
- Internet Communications
  - Presentations tools (Prezi, Slideshare, Voicethread, online polling)
- Multimedia Development
  - Collaboration tools (Mindmapping, social bookmarking/networking, Creately, VT)
  - Choose 2 of 3:
    - Video production
    - Audio production
    - Image Production
  - Social Science tools (Google Earth, Interactive Timelines)
  - Management tools (Versal, Google Classroom, Canvas, EdPuzzle, etc.)
  - English Education (iBooks Auth., Storybird, Diigo, Mendeley)
  - FACS Education (Urban planner, Sketchup)
- Early Childhood
- Special Education
- Fine Arts Education
- Research Tools
- Productivity Tools
HOW TO EARN THE
ENGLISH TEACHING-TECH SKILLS MASTER
BYU
BADGE

1
BASIC TECH, WEB, & VIDEO

EARN ALL 4:

- HTML Editor BYU
- Website Development BYU
- ScreenCasting BYU
- Instructional Design BYU

2
MULTIMEDIA PRODUCTION

CHOOSE ONE OPTION:

Do 1:
- Books Author BYU

Do 2:
- Audio Editing BYU
- Podcasting BYU

Choose Any 2:
- Infographics BYU
- Photo Editing BYU
- Image Design BYU
- Video Storytelling BYU
- EdPuzzle BYU

3
PERSONAL TECHNOLOGY PROJECT

CHOOSE ONE OPTION:

Do 1 of These:
- Web Development BYU
- Mobile App BYU
- Game Design BYU
- Robotics BYU
-Arduino BYU

Choose Any 5:
- Print Production BYU
- Video Production BYU
- Audio Production BYU
- Image Production BYU
- Storytelling BYU

PROJECTS

- Minecraft
- Wordpress
- Arduino
- Robotics
- Game Development
Mastery Approach

Student Works on Project/Makes

Submit/Resubmit

Multiple Attempts allowed

Feedback

An “A” in class does not necessarily equal a badge

Instructor/TA Assess
Intra-University Partnering

Multimedia in Education

- History
- Science
- Languages
- English
- Elementary
- Dance
- Social Sciences
Hey, I'm using this thing called badges!

Cool! So am I!
Well, we should, like, collaborate!

Totally!
The Problems...

1. How can we share ideas with other universities?
2. What is shareable ... and what isn’t?
3. Can we start to break down walls to learner options?
4. How can we make these badges “matter” more?
5. How can we make this sustainable?
The Solution ...

1. Open agreements & shared technology
2. Shared standards
3. Strong endorsements
4. Workload sharing
The Solution ...

1. Open agreements
Open Agreements

1. All badges must require *demonstrable tasks*
2. Maintain quality control in reviewing
3. All badges must collect and embed data
4. Badges should demonstrate *mastery*

Rubrics are CC
Branding is not
Agreement on the framework, individuality on the badges.
Open Agreements

- Developing Technology Skills and Knowledge
- Understanding Effective Technology Use
- Planning for Implementation
- Implementing and Reflecting
- Mentoring/Teaching Others

Developing Technology Skills and Knowledge
From Another Perspective...

Mentoring / Teaching Others (TP²CK?)

TPCK: Implementing and Reflecting

TPCK: Planning for Implementation

TPK: Understanding Effective Technology Use

TK: Developing Technology Skills and Knowledge
Edit Badge

Badge edit page. Please fill in information below and add requirements for you badge.

![Fitness Tracking BYU Badge](image)

Badge Image

**Fitness Tracking**  **Brigham Young University**  **Health**

Individuals earning this badge will explore the various features associated with these two apps including weight log, diet tracker, routing exercise routes, and several social features. Users will submit two separate screencasts that will detail the features, settings, and routes.

MyFitnessPal helps users lose weight by tracking caloric intake and exercise. This simple tool allows you to add and log recipes (including meals from several dozen restaurants) to help monitor daily caloric intake. An exercise calculator enables users to track how calories are burned through various physical activities. MapMyRun focuses on helping users improve their lifestyle by tracking physical activity and nutritional information. Users can search suggested running routes, or map their own routes, and develop a workout history by tracking run distance, duration, calories burned, and other data. Additional features enables users to log food and nutritional decisions for a more complete picture of physical lifestyle.

Enter the name of an organization endorsing this badge (Optional)

Enter the url of an organization endorsing this badge (Optional)

Save Badge Info

Requirements

Click through the following panels and mark each requirement as completed when you finish. When you have finished every requirement click on 'Submit Badge'.

1. **GETTING STARTED**
2. **CREATE A 3D MODEL**
3. **EXPORT & PRINT**
4. **SUBMISSION**
1.2 Account & Lessons

Go to Tinkercad and sign up via Facebook or create a login. When you first login, you will be directed to a page to complete lessons. Complete at least 5 of them, then take a screenshot of your home page where the lessons have a “DONE” badge on them. Include this screenshot on your submission form.

1.3 Copy and Tinker

Look through the Gallery of designs that other users have created. Select one that you like, and click “Copy & Tinker”. Take a “Before” screenshot of your copied design, then play with that 3D image to significantly alter it, and take an “After” screenshot of your changes. Include both the “before” and “after” screenshots on your submission form.

2. CREATE A 3D MODEL

3. EXPORT & PRINT

4. SUBMISSION
<table>
<thead>
<tr>
<th>ORGANIZATION</th>
<th>ASSIGN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brigham Young University</td>
<td></td>
</tr>
<tr>
<td>Brigham Young University - Hawaii</td>
<td></td>
</tr>
<tr>
<td>Brigham Young University - Idaho</td>
<td></td>
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<tr>
<td>BYU Arts</td>
<td></td>
</tr>
<tr>
<td>Purdue University</td>
<td></td>
</tr>
<tr>
<td>BADGE</td>
<td>ORGANIZATION</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-------------------------------------------</td>
</tr>
<tr>
<td>21st Century Skills</td>
<td>University of Memphis</td>
</tr>
<tr>
<td>3D Modeling</td>
<td>Brigham Young University</td>
</tr>
<tr>
<td>Adobe Photoshop - Basic</td>
<td>Instructional Psychology and Technology</td>
</tr>
<tr>
<td>Audio Editing</td>
<td>Brigham Young University</td>
</tr>
</tbody>
</table>
Please select a reviewer. If no preference, select “no preference”

Requirements
Click through the following panels and mark each requirement as completed when you finish. When you have finished every requirement click on “Submit Badge”.

1. GETTING STARTED
2. CREATE A 3D MODEL
3. EXPORT & PRINT
4. SUBMISSION

* Select a reviewer Submit Badge
## Review Badges

### Assigned to Me

<table>
<thead>
<tr>
<th>Name</th>
<th>Badge</th>
<th>Date Submitted</th>
<th>Organization</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jim Halpert</td>
<td>3D Modeling</td>
<td>2017-07-28</td>
<td>Brigham Young University</td>
<td>Continue Review</td>
</tr>
<tr>
<td>Pam Halpert</td>
<td>Personal Training</td>
<td>2017-07-28</td>
<td>Brigham Young University</td>
<td>Continue Review</td>
</tr>
<tr>
<td>Dwight Schrute</td>
<td>Digital Storytelling</td>
<td>2017-07-28</td>
<td>University of Memphis</td>
<td>Continue Review</td>
</tr>
<tr>
<td>Jennifer Kensington</td>
<td>Audio Boom</td>
<td>2017-07-28</td>
<td>Brigham Young University</td>
<td>Continue Review</td>
</tr>
<tr>
<td>Michael Scott</td>
<td>21st Century Skills</td>
<td>2017-07-28</td>
<td>Brigham Young University</td>
<td>Continue Review</td>
</tr>
<tr>
<td>David Wallace</td>
<td>Adobe Photoshop</td>
<td>2017-07-28</td>
<td>University of Memphis</td>
<td>Continue Review</td>
</tr>
<tr>
<td>Jacob Taylor</td>
<td>Basic Technology</td>
<td>2017-07-28</td>
<td>University of Memphis</td>
<td>Continue Review</td>
</tr>
<tr>
<td>Joycee VanWagoner</td>
<td>Basic Lab Skills</td>
<td>2017-07-28</td>
<td>Provo School District</td>
<td>Continue Review</td>
</tr>
<tr>
<td>Sidney Pettit</td>
<td>Audio Editing</td>
<td>2017-07-28</td>
<td>Brigham Young University</td>
<td>Continue Review</td>
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</tbody>
</table>

### Unassigned

<table>
<thead>
<tr>
<th>Name</th>
<th>Badge</th>
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<th>Organization</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jim Halpert</td>
<td>3D Modeling</td>
<td>2017-07-28</td>
<td>Brigham Young University</td>
<td>Start Review</td>
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<tr>
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<td>Personal Training</td>
<td>2017-07-28</td>
<td>Brigham Young University</td>
<td>Start Review</td>
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<td>2017-07-28</td>
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<td>David Wallace</td>
<td>Adobe Photoshop</td>
<td>2017-07-28</td>
<td>University of Memphis</td>
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<td>Jacob Taylor</td>
<td>Basic Technology</td>
<td>2017-07-28</td>
<td>University of Memphis</td>
<td>Start Review</td>
</tr>
</tbody>
</table>

### Messages

- **Brian Regan**
  
  Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laore...

- **Brian Regan**
  
  Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laore...

- **Brian Regan**
  
  Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laore...
## Badges Earned

- Infographics
- Edpuzzle
- Fitness Tracking
- Infographics
- Edpuzzle
- Fitness Tracking
- Infographics
- Edpuzzle

### In Progress

<table>
<thead>
<tr>
<th>Badge</th>
<th>Description</th>
<th>Status</th>
<th>Next Step</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D Modeling</td>
<td>Step 1 complete. Start Step 2.</td>
<td></td>
<td>Edit</td>
</tr>
<tr>
<td>Gaming</td>
<td>Badge submitted...Under Review</td>
<td></td>
<td>Edit</td>
</tr>
<tr>
<td>Audioboom</td>
<td>Reviewer's comments</td>
<td></td>
<td>Edit</td>
</tr>
<tr>
<td>Audio Editing</td>
<td>Submission approved. Export to Mozilla.</td>
<td></td>
<td>Export</td>
</tr>
<tr>
<td>Biodigital Human</td>
<td>Submission approved. Export to Mozilla.</td>
<td></td>
<td>Export</td>
</tr>
</tbody>
</table>
Solution: Badgr Partnership
The Solution ...

1. Open agreements & shared technology
2. Shared standards
# ISTE Standards: Evolving as Learning Environments Change

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Computer lab</td>
<td>Laptop carts</td>
<td>1:1</td>
</tr>
<tr>
<td></td>
<td>Computer teacher</td>
<td>Innovative teachers</td>
<td>All teachers</td>
</tr>
<tr>
<td></td>
<td>Teacher directed</td>
<td>Student-centered</td>
<td>Learner-driven</td>
</tr>
<tr>
<td></td>
<td>How to use tech</td>
<td>Using tech to learn</td>
<td>Amplifying learning with tech</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
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</thead>
</table>

The table above illustrates how the focus of ISTE Standards has evolved over time as learning environments have changed. The comparison highlights shifts from teacher-directed learning to more student-centered and learner-driven approaches, with the integration of technology becoming more ubiquitous from 1998 to 2016.
Current ISTE Standards

- Learner
- Leader
- Citizen
- Designer
- Facilitator
- Analyst
- Collaborator
- Innovative Designer
- Knowledge Constructor
- Digital Citizen
- Empowered Learner
- Global Collaborator
- Creative Communicator
- Computational Thinker

Current ISTE Standards

- Learner
- Teacher
- Citizen
- Designer
- Facilitator
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- Innovative Designer
- Knowledge Constructor
- Digital Citizen
- Empowered Learner
- Global Collaborator
- Creative Communicator
- Computational Thinker

ISTE Standards

Students 2016

ISTE Standards

Teachers 2017
Standards are set to define desired performances.

Indicators (what one might exhibit, if operating at standard)

We can use them as part of a “badging taxonomy” for teachers.
“And now for something completely different?”

What was this game, and how did it work?
ISTE Certification Badge, comprised of:

- Empowered Learner Badge
- Digital Citizen Badge
- Knowledge Constructor Badge
- Innovative Designer Badge
- Computational Thinker Badge
- Creative Communicator Badge
- Global Collaborator Badge
Standards-based Badge

Creative Communicator

- Mentoring
- Teaching Others
- “Free Style” Implementation
- Planned Implementation
- Understanding
  - BYU
  - PSU/LDT100

Technology Skills
- SKYPE
- Zoom
- iMovie
**E.G. Empowered Learner**

**Evernote**: This note-taking and archiving tool allows you to capture and note full webpages or excerpts. You can take notes and save and annotate web pages, images, audio recordings, etc., and sync the files across all your devices. The archiving function allows you to categorize, tag, and search your notes.

**Research Management**: Individuals interested in earning this badge will install a free research management desktop program and associated bookmarklet. Badge earners will add multiple documents into their library, add notes and highlights, learn how to insert or expert a citation and bibliography (and share a library with other users).

**Productivity Tools**: This badge is offered through the EdTech Certificate program at the University of Memphis. It demonstrates that the learner has shown proficiency in creating documents using Google Docs, Google Sheets, Google Slides, and Google Forms. Specifically, the learner has included all of the advanced elements for each productivity tool, and has completed them perfectly.

**Developing Technology Skills and Knowledge**
E.G. Empowered Learner

21st Century Thinking: This badge will demonstrate your understanding of 21st Century learning over the course of two modules. You will be required to complete two modules pertaining to 21st Century Skills to obtain this badge. You will demonstrate knowledge of 21st Century Skills with the use of technology tools.

Understanding Empowered Learning
- Describe the need for a teacher to be a lifelong learner.
- Identify the key attributes of a teacher who is a continuous learner.
- Identify important types/categories of technology that facilitate continuous/lifelong learning.
- Identify and describe the key elements of a professional learning network.
- Identify how technology can be used to a) access and apply relevant pedagogical approaches to enhance student learning; b) participate in local and global learning networks for professional growth and learning; and c) stay current with research.

Scenario assessments: Your department head has asked you to create a mentoring program for the new faculty members. The key part of the mentoring program needs to focus on helping them identify the technology that will be most useful to them. Create a proposal of the mentoring program and briefly describe each of the key features.
Lesson Planning: This badge will demonstrate your proficiency writing lesson plans in the MTVT format. For the first lesson plan you will begin the MTVT process. For the follow up assignment, you will integrate technology learned in the course. Peer review is also involved in this component.

Scenario planning: 1. Your department chair knows you have an interest in self-regulation. He wants you to produce a lesson plan that shows: 1) how this is done for your selected classroom of students – give a sample lesson and 2) create an outline of an in-service lesson for the teachers in your school.

2. Your school district covers a wide area with 3 different high schools. Several teachers in each have been asked to form a committee to review the current curriculum. To get a good start, create the following:

- A list of technologies that will help in this process
- A basic plan on what would be taught to make sure all committee members have the knowledge and skills needed
- An email to all of your committee members explaining the need for a professional learning network
Show data of successful implementation: 1. Create a digital portfolio showing your efforts designing activities for students that teaches them to be empowered learners. Include any evidence that your students have successfully learned these skills.

2. Create a digital portfolio showing your own efforts to be an empowered learner, along with links to your artifacts, technology profiles, and professional learning experiences and tools.
Show data of successful mentoring of other teachers in these skills:
1. Design, implement, and evaluate learning experiences for other teachers and students that enhance their abilities to identify, select, and use technology within their own personal learning networks.

2. Mentor a set of teachers on how to effectively use technology to help stay current with research on student learning pedagogies.
The Solution ...

1. Open agreements & shared technology
2. Shared standards
3. Strong endorsements
Strong Endorsements

- Reviewed every 5 years by 2 reviewers
- Must represent acquired skills
- Skills aligned with AECT mission
- Requires demonstrable evidence
- Reviewing reliability/validity
- Openly licensed
- Uses metadata
• Departments of Education?
• Other professional organizations?
• Local school districts?
The Solution ...

1. Open agreements & shared technology
2. Shared standards
3. Strong endorsements
4. Workload sharing
Instructional Design Assistants

IDAs: Undergrads with subject matter expertise, trained to develop badges

Question: Can they do the job?
Experts scored rubrics for
1. spelling/grammar;
2. demonstrable tasks
3. Rigor/comprehensiveness
4. Clarity
5. Adoptability

<table>
<thead>
<tr>
<th>Summary of Ratings for Each Group of Rubrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructors or IDA</td>
</tr>
<tr>
<td>Inst. (excluding Logger Pro)</td>
</tr>
<tr>
<td>IDA</td>
</tr>
<tr>
<td>Inst.</td>
</tr>
<tr>
<td>IDA</td>
</tr>
</tbody>
</table>

“the IDAs appear to have done as well, if not better, than our instructors who were experienced badge designers”
How?

Mentoring; Prior experience; Concurrent TA opportunities
Next Project: Interdisciplinary Design Thinking
Current Challenges

1. University-level approval

![Image with cartoon characters: one character suggests badges, another says 'No thanks!', and a third says 'We are too busy'.]
Current Challenges

2. Badge “marketplace” to make it drop-dead easy for teachers to find badges for professional development, linked to teaching standards/frameworks.

3. Methods for management of multiple reviewers

4. Systems for handling paid and free earners
Current Challenges

Employers will care about badges when they see them.

Applicants will care when employers start asking...

Thought: Noah Geisel

@BryanMMmathers
Benefits Seen So Far

1. We are better teachers
2. We are thinking deeply about standards
3. Our students have more options
4. We can grow and create more badges
5. More legitimacy through endorsements
A thought on why this all matters ...
“An open education infrastructure, which can support extremely rapid, low cost experimentation and innovation, must be comprised of at least these four parts:

1. Open Credentials
2. Open Assessments
3. Open Educational Resources
4. Open Competencies”

*From https://lidtfoundations.pressbooks.com*
We are part of the Solution!

Education is more than content.

We can address the part of the equation nobody else is.
Questions?

rickwest@byu.edu

Badgeschool.org
Extra
Improved Assessment and Feedback
A badge is only as good as:

The criteria required to earn it.

The process used to evaluate the learner’s work.

It’s usefulness to students and other stakeholders.
Badges Encourage:

More rigorous criteria

Rigorous assessment practices

The rigor (number and difficulty) of criteria give this badge weight.
Rigor of Badge Assessment

• If the criteria are rigorous, but the assessment process is not, it can still result in “lightweight” badges.

• Assessment process should provide learners with specific, formative feedback that allows learners to reach the level of mastery.

• This is not only important for learning, but also gives the badge more credibility as a legitimate credential.
Easier to Show What You Know
The Transparency Advantage of Being “Open”

Exams
Assignments
Citizenship
Participation
Extra Credit
Attendance

B+
Collections

- Multiple collections can be created.
- Collections can remain private or can be made public and shared.
Personalization and Flexibility
Preservice Teachers vary by...

Major
Technology Ability
Pedagogy Knowledge
Personal Interest
Other Experiences
One Size Does Not Fit All

https://www.flickr.com/photos/aquamech-utah/25072344705
Lifelong Learning
Preservice Teachers & PD for Inservice Teachers

A good badge system has more badges than an undergraduate is likely to earn.

Earning additional badges can provide many learning opportunities

Keep earning after graduation for Professional Development
Add a path of badges all the through
Comparing Credentials in Formal Education

• Degrees awarded after a long period of time or a great deal of experience
• Learning from ONE institution.
• Transcripts have lots of information, but is it useable?
• Credential detached from evidence and criteria
• Learner doesn’t own the credential
New Badge

Badge creation page. Please fill in information below and then click “submit” to add requirements for your badge.

Enter Badge Name

Select Organization

Select Topic

Enter Badge Description Here

Choose File

Badge Image

Enter Badge Summary Here

Next Step  Save as draft  Publish