Student Insights: Math Badging Micro-Internship

May 20, 2024
Today’s Discussion

12:05  Introductions
12:10  IMBI Overview
12:15  Micro-internship Overview
12:25  Student Insights
12:50  Reflections
Our Mission

Shape and strengthen education and workforce systems to advance racial equity and prepare more learners for productive careers and lives in a global economy.

Focus Areas

- Bridges to Postsecondary
- College & Career Pathways
- Data Impact & Leadership

Geographic Focus

- Statewide
- Community Networks
Explore the I-WIN Resource Hub and subscribe to the newsletter.

Highlight and explore innovative models for work-based learning.

Build connections among communities to share best practices, learnings and resources.

Engage in conversations on creating sustainable, high-quality models that provide broader and more equitable access, focusing on building social capital for historically marginalized students.

Identify needs for state policy changes or support systems.
Illinois Math Badging Initiative (IMBI)
Overview
What Are Math Badges?
An Alternative Credentialing Mechanism

- Aligned to:
  - Illinois Learning Standards (incorporating CCSS)
  - Transitional math competencies
- Stackable
- Translate into credit for:
  - Transitional math
  - High school math courses
  - Early college credit
How Do Math Badges Work?

Students can certify learning from a broad range of sources:

- Coursework
- Independent study
- Summer school
- Work-based learning, etc.
Why Math Badges?

Improve math outcomes and advance racial equity through:

- Stronger alignment to math needed for secondary, postsecondary, and career success
- Students demonstrate knowledge not captured by grades
- Opportunities to develop and reinforce math knowledge and skills
- Validate learning outside of the classroom through work-based and other applied learning.
- Customization engages students with math directly related to college and career interests
It’s Not Just About Badges!

Badges are a tool to:

- Solve a problem
- Rework a system
- Change a structure
- Transform teaching
- Focus on learning
In partnership with XQ Institute
What’s in a Badge?

Each math badge includes:

• Mathematical content and practice expectations
• Learning principles
• Examples of rich problems
• Evidence of learning (assessments)
(Three Types of) Evidence of Learning

**Portfolio of Evidence**
A set of artifacts students collect throughout their work on a badge

**Concept and Skills Assessment**
A short, online traditional assessment

**Performance Assessment (Modeling Badges Only)**
An opportunity for students to demonstrate their learning by doing
For More Information

If you are interested in learning more about math badging, please contact:

Dania Ibrahim
dibrahim@niu.edu
Micro-Internship Overview
Internship Goals

• Identify real-world situations that involve mathematical concepts
  • Apply appropriate investigative methods to better understand these scenarios.

• Gather information on how math is applied in school activities outside of a traditional math classroom, as well as in various fields/industries.

• Determine opportunities for learning aligned to badges out of traditional courses

• Develop recommendations for schools to capture math learning outside of the classroom.
Intern Goals

• Develop research skills to explore and gather information on how math is applied in school activities outside of a traditional math classroom.

• Develop strong reflection skills by critically analyzing researched concepts, and synthesizing insights into a coherent narrative.

• Enhance ability to communicate mathematical concepts effectively by presenting insights and reflections in a clear, organized manner and engaging with peers.
Internship Structure


What: 6 week, 30 hour, paid, virtual micro-internship.

Weekly activities:

• Pick a topic to explore each week.
• Gather information from your various sources to reflect on how math concepts and skills are utilized in your topic of interest in a digital journal.
• Synthesize insights on 1 slide and give a 5 minute presentation at weekly meetings.

Example topic

Math in School Activities
Reflect on the math involved in school activities outside of math class. This could include sports statistics, budgeting for school events, or analyzing data for a science project. How does math play a role in these activities?
Weekly Presentations
Guest Speakers
Internship Structure

**Final project:**

- Synthesize the insights you’ve gathered about math outside of the traditional classroom.
  - Use examples from your journaling activities to illustrate your points.
  - Choose a math badge or badges that most relate to your final project topics.
- Reflect on internship objectives and your experience with the internship.

Example final paper

---

**Example badges**

- Quantitative Reasoning
- Linear Equations: Concepts and Skills
- Modeling with Linear Functions and Equations
- Function Concepts
- Coordinate Geometry
- Inference and Making Conclusions
Internship Challenges

Time of year: Spring is already a busy time for students.

Weekly timing: Students across schools had conflicting schedules.

Content:

- *Assignment Flexibility:* While many students appreciated the open-ended nature of the tasks and enjoyed learning new content from one another, they sometimes found it challenging to strike the right balance of explanation and to understand each other's content.

- *Explanation of Math Badges:* We decided to delay tying students’ work to math badging. However, earlier explanations of badging and the greater context of student work would have benefited the interns.
Student Feedback

“I enjoyed doing weekly journals about different math topics and found it interesting how the further into the internship I got I started realizing how all my topics correlated together whenever it seems like the topics have nothing in common.”

“It’s easy to say, ‘I use math every day!’ but during this internship, we went more in depth on how our hobbies, our work, and other daily things really use math. I can apply all these things I’ve learned and researched when I take a photo, when I cook, or when I plan to travel again!”

“I feel my mindset has shifted from only being able to see math used in the classroom to start being able to see connections with math in the real world. I feel stronger about being able to identify scenarios that use math and solve those scenarios.”

“After the internship, my primary improvement would likely be my expository skills to an audience not already familiar with many of the math terminology or concepts I am familiar with.”