Micro what?

Microcredentials are a way for educators to pursue professional learning and earn recognition that is:

- competency-based
- personalized
- on-demand
- shareable

Digital Promise, 2016

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Some of the Buzz Around Microcredentials

Microcredentials provide opportunities

- for teachers to engage in "rigorous, self-paced, job-embedded professional learning that is connected to the daily skills teachers need in their classrooms" (Acree, 2016, p.1)

- to credential teachers' learning through their participation in PD (Diamond & Gonzalez, 2016) and are emerging as an alternative way to demonstrate knowledge (Willis, Flintoff, & McGraw, 2016)

- to recognize learners' content acquisition and certify skills and knowledge (Lewis & Lodge, 2016)

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Microcredentials consist of five parts

1. a specific competency or skill,
2. pathways for educators to acquire competency or skill,
3. a process to submit artifacts demonstrating mastery and implementation of that competency or skill,
4. a means for reliable assessment to determine whether they demonstrate the competency or skill; and
5. shareable digital badges to certify a teacher's accomplishment and provide evidence for continuing education credits.

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Teacher doing a microcredential

A teacher considering pursuing a micro-credential will typically go to the hosting website, click on the name of the micro-credential, and find:

☐ the objective of the competency to be demonstrated through the micro-credential;

☐ the research supporting the efficacy of the teaching competency;

☐ resources to support learning the teaching competency, such a weblinks to videos or written texts;

☐ the evidence that must be submitted to earn the micro-credential; and

☐ the rubric and scoring for how that evidence will be assessed.

DeMonte, 2017

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Which States Allow MCs for PD credit?

Early Adopters: Arkansas, Delaware, Tennessee

Others: Illinois, Maryland, Massachusetts, Montana, New York, North Carolina, Texas, and Wyoming
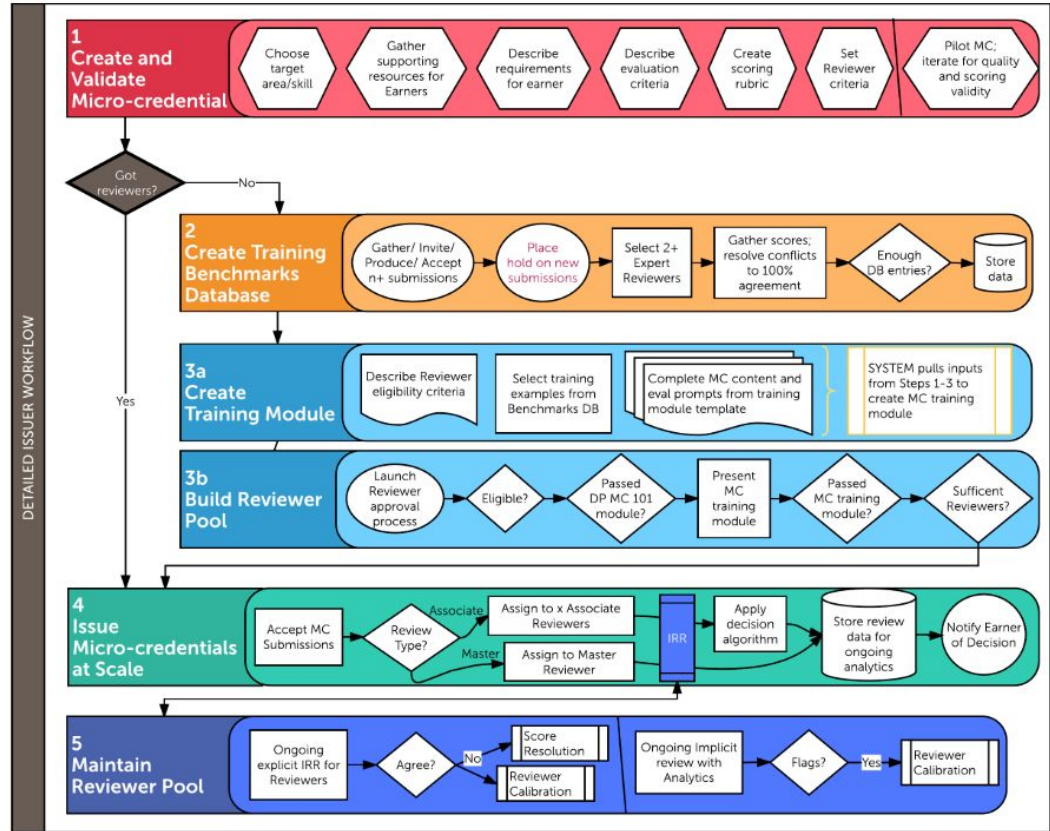
Maybe more now??

DeMonte, 2017

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How are microcredentials created and maintained?

Oh, let us tell you the ways.....

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General MC Workflow and Process used at Friday Institute

p. 2, Digital Promise, 2016

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MOOC-Ed Initiative at the Friday Institute
place.fi.ncsu.edu

MOOC-Ed: Massive Open Online Courses for Educators

Course Open
Teaching the Beauty and Joy of Computing Curriculum

Registration Open
Teaching Foundational Reading Skills

Registration Open
Coaching Digital Learning

Registration Open
Teaching Mathematics with Technology

Registration Open
Teaching Statistics Through Inferential Reasoning

Learning Differences

Problem Solving in the Digital Age

Teaching Statistics Through Data Investigations

Fraction Foundations

Disciplinary Literacy for Deeper Learning

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MOOC-Eds with Associated Microcredentials

MOOC-Ed: Massive Open Online Courses for Educators

Course Open — Teaching the Beauty and Joy of Computing Curriculum

Registration Open — Teaching Foundational Reading Skills

Registration Open — Coaching Digital Learning

Registration Open — Teaching Mathematics with Technology

Registration Open — Teaching Statistics Through Inferential Reasoning

Learning Differences

Problem Solving in the Digital Age

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Disciplinary Literacy for Deeper Learning

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Teaching Statistics Through Data Investigations http://go.ncsu.edu/tsdi

- First launched Spring 2015
- FREE – funded through grant from Hewlett Foundation
- Designed for teachers of students age 12 through introductory college courses (focus on pedagogy)
- Goal is to equip teachers with tools, frameworks, resources, and skills to teach statistics as an investigative process with real data
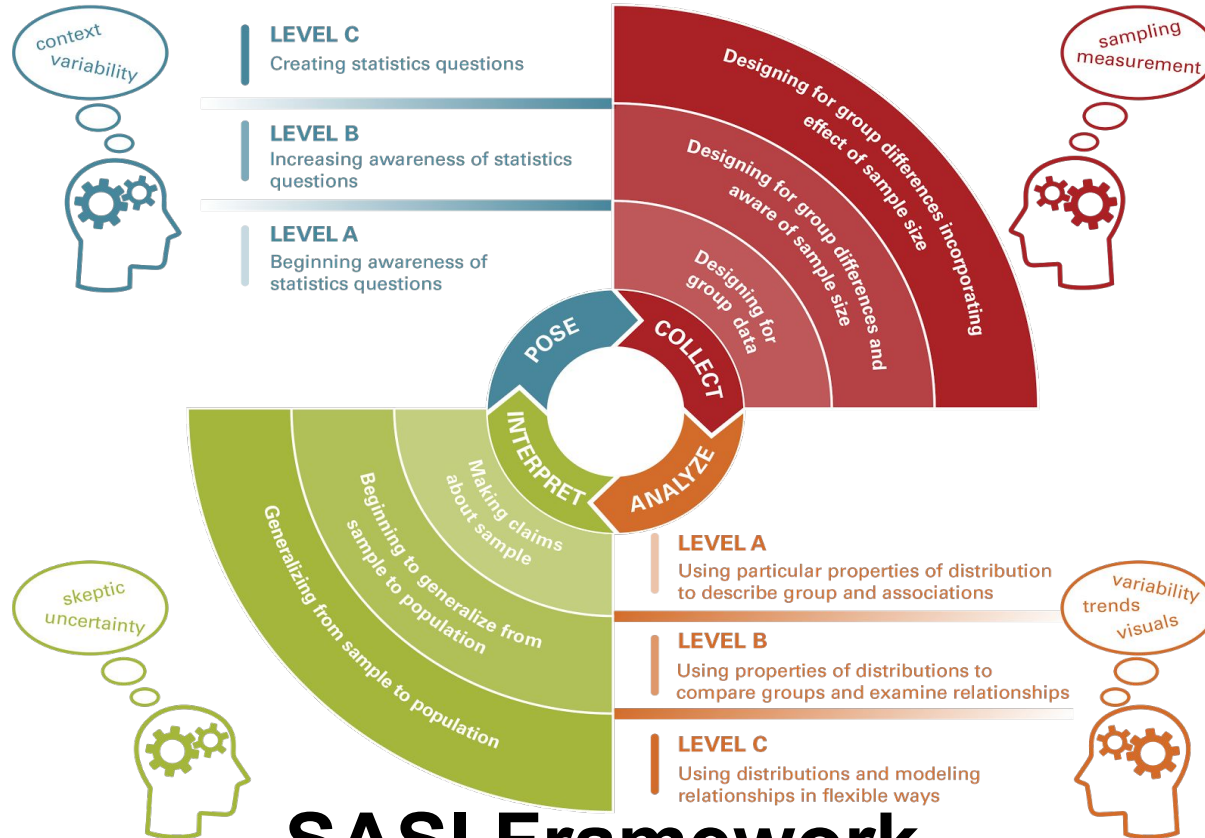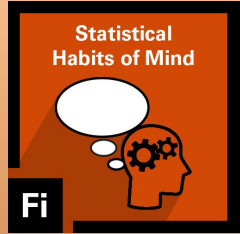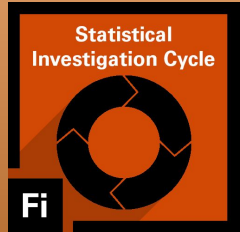
SASI Framework

Teaching Statistics Microcredentials

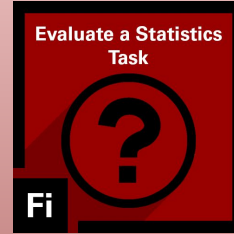place.fi.ncsu.edu

Understanding the SASI Framework Overview

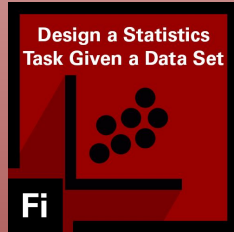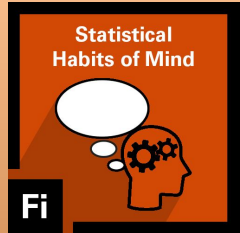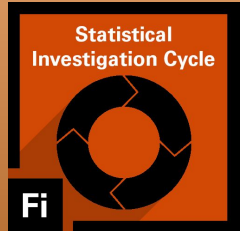**Statistical Habits of Mind**
Fi
5 PD hrs

Statistical Investigation Cycle
Fi
5 PD hrs
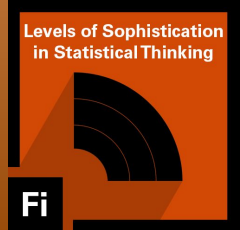
**Levels of Sophistication in Statistical Thinking**
Fi
5 PD hrs

Statistics Task Design

Evaluate a Statistics Task
Fi
5 PD hrs

Design a Statistics Task Given a Data Set
Fi
5 PD hrs

Choosing a Statistics Task for your Context
Fi
7.5 PD hrs

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MC Participants

- 28 educators from 6 different countries
  - 79% from US (from 10 states/

    1 territory)
- 75% identify as female
- 71% identified as classroom teachers
- 68% have advanced degrees
- Mean of 15 years of experience
  - 11% with 1-5 years and 29% with more than 20 years
- 46% enrolled in TSDI, 25% enrolled in TSIR, 21% enrolled in both

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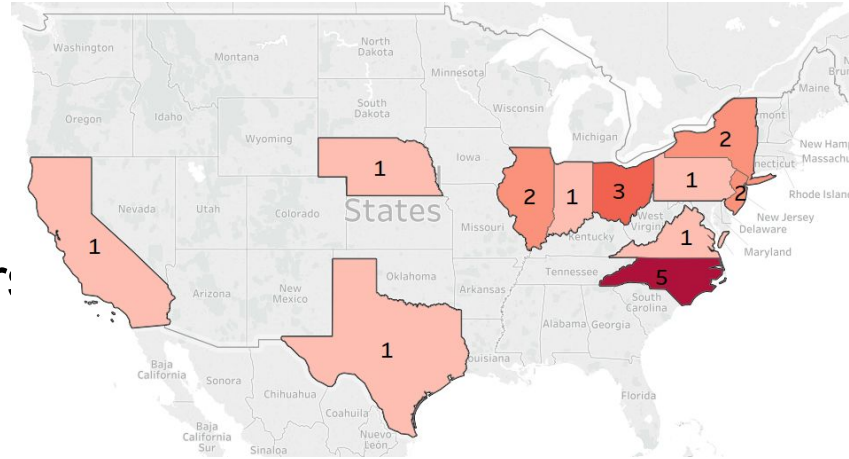
SASI MCs: How many have been submitted and earned?

Microcredential		# of submissions	# of resubmits	# earned (% earned)
1	SASI1	28	4	7 (25%)
2	SASI2	18	0	10 (56%)
3	SASI3	14	1	6 (42%)

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Statistical Habits of Mind: Four Questions

Demonstrate This Competency

Review the resources below and prepare a response to the following questions. Once prepared, scroll down and click the "Attempt Now" button to enter your responses and upload any needed artifacts.

1. Briefly describe some of your experiences as a learner or teacher of statistical content and how that has shaped your perception of statistics.

   Show/Hide Rubric

2. What are some of the critical statistical habits of mind that are productive when engaging in statistics?

   Show/Hide Rubric

3. Consider the task. Create two fictional students' responses to this task. The first should be an example that demonstrates the application of at least 3 statistical habits of mind and articulates how those habits of mind engage the student in thinking statistically. The second should demonstrate a non-example response that lacks evidence of a student's use of statistical habits of mind and describe how this limits the student's response.

   Show/Hide Task

   Show/Hide Rubric

4. How do you plan to use your understanding of statistical thinking and statistical habits of mind in your educational practices?

   Show/Hide Rubric

SASI I Q#3

The Task:

Students wanted to investigate the following question: *Is the distance a male student can jump affected by having a target to jump toward?*

The students decide to perform an experiment comparing two groups. One group will have male students jumping toward a fixed target, and the other group will have male students jumping without a fixed target. There are 28 male students that were randomly assigned into 2 groups. Data were collected on the length (in centimeters) of one jump for each male student. The data for 28 male students are summarized in the boxplots below. Discuss whether the distances the male students jumped were affected by having a target. Justify your conclusions.
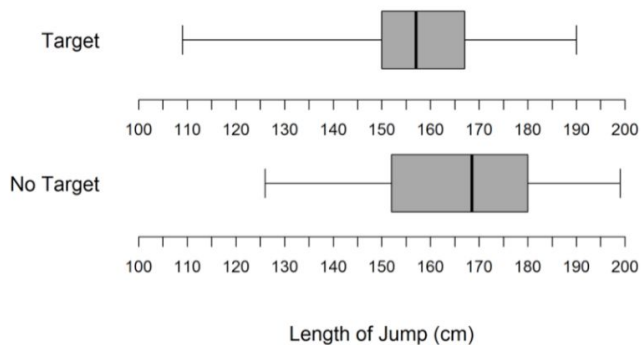
Scoring Rubric

Yes	Not Yet
The response provides one fictional sample student response (example) that… › Clearly illustrates student using at least 3 statistical habits of mind to answer the investigative question. › Clearly articulates how student's use of those statistical habits of mind engages them in thinking statistically in this task.	The response does not provide one fictional sample student response (example) that… › Clearly illustrates student using at least 3 statistical habits of mind to answer the investigative question. › Clearly articulates how student's use of those statistical habits of mind engages them in thinking statistically in this task.
AND The response provides one fictional sample student response (non-example) that… › Clearly illustrates student's work that lacks evidence of robust use of statistical habits of mind. › Clearly articulates how not using statistical habits of mind limits the student's statistical thinking in their response to the task.	OR The response does not provide one fictional sample student response (non-example) that… › Clearly illustrates student's work that lacks evidence of robust use of statistical habits of mind. › Clearly articulates how not using statistical habits of mind limits the student's statistical thinking in their response to the task.

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Your turn to score a MC!

Use the Scoring Guide to review Rachel and Carla's submissions.

Teaching Statistics Micro-credentials Scoring Guide

Stack 1: Understanding the SASI Framework

What is the SASI framework?
Frameworks are extremely helpful to guide instruction, curricula design, and assessment. The SASI framework is important for educators to learn how to support Students' Approaches to Statistical Investigation (SASI) across all levels of education where students are learning to think statistically and develop their sophistication in using statistical ideas to investigate real world questions with data.

In the Understanding the SASI Framework stack educators will have the opportunity to develop and demonstrate three competencies:

Name of Micro-credential	Competency	Value of Credit
Statistical Habits of Mind	To earn this micro-credential, the earner will understand the unique statistical habits of mind that are necessary to engage in statistical thinking and how these are applicable to practice.	5 hours (or 0.5 CEUs)
Statistical Investigation Cycle	To earn this micro-credential, the earner will understand the phases of the statistical investigative cycle and how it can be used to develop the statistical habits of mind in learners of statistics.	5 hours (or 0.5 CEUs)
Levels of Sophistication in Statistical Thinking	To earn this micro-credential, the earner will understand the unique statistical habits of mind that are necessary to engage in statistical thinking and how these are applicable to practice.	5 hours (or 0.5 CEUs)
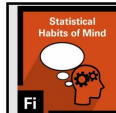
SASI1: Statistical Habits of Mind Q#3

Sample Micro-credential Responses

Rachel's Response
Student 1 – Uses Statistical Habits of Mind
This is an interesting question. I would guess that if there was a target there to jump to, it would help me to jump further. Time to look at the data to see what is there. Hmmm … the smallest jump is about one meter while the largest is about 2 meters.

The problem states that the groups were randomly assigned to the target and the no target group but there are only 28 males all together which doesn't seem like a very big sample size to me. And I don't have an age for the group. That would have a big impact. I don't think a kindergartner could jump as far as I can but someone in high school might be able to! So any conclusions I make would have to be just for this small population since the size is so small and I don't know ages.

I love working with box plots. They are a cool way to display your data and I can also see the variability in the data. The range of the data doesn't appear that there are any outliers. The median for the target group is about 156 while the no target is 169. 50% of the no target group jumped 25% of the target group. That would mean that 6 males jumped farther than 3 males.

Conclusion: I am not convinced that a target would or would not have an affect on the distance a male could jump. The data is inconclusive. I feel that the sample size is too small and I am not clear who the population is that I am looking at. I would say for this group of 28 males, the use of a target had a negative impact on the distance that was jumped.

Student 2 – No Habits of mind
So I need to determine if the distance a male student can jump is affected by having a target to jump toward. The problems says 28 males and random. I heard the teacher say something about random last week.

Okay, box plots, I know how to interpret these. The mean is higher for the no target group and they also jumped farther overall. So my conclusion is that having a target does not have you jumping farther than if you don't have a target.

Scores Earned by Question (Yes=1, Not Yet=0)

Statistical Habits of Mind MC (n=28)
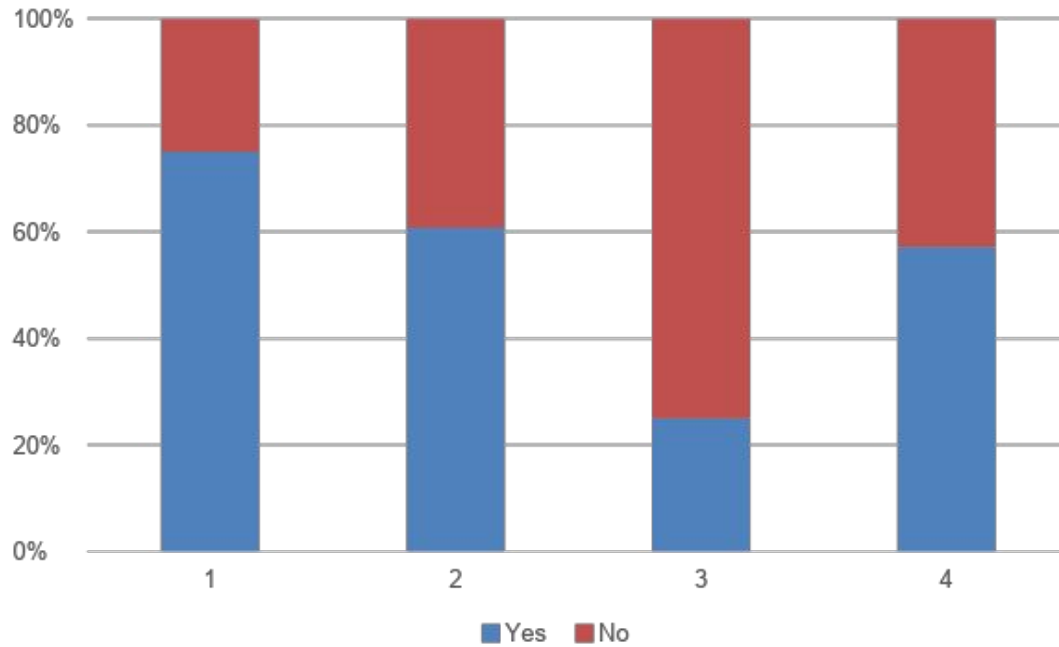
25% of those who submitted earned this MC

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Scores (Yes) Earned by Question
(SASI1, SASI2, SASI3)

	Q1	Q2	Q3	Q4
SASI1	75%	61%	25%	57%
SASI2	78%	61%	83%	67%
SASI3	57%	71%	50%	57%

Lessons learned … challenges

- Design -- general vs. specific
- How will this be funded?
- Management -- Need to build capacity
  - Where do the MCs live?
  - Submissions & scoring/returning feedback
  - Digital Badges
- Building core group of reviewers & maintaining qualified reviewers
- Developing scoring guides and training materials
- Developing a model to train reviewers and implementing
- Quality control -- iterative process
  - design, implement, evaluate, revise

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Opportunities

- MCs are
  - way for educators to engage in professional learning related to their practice
  - earn recognition for showing competency of specific knowledge and skills

Contact Information

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Access Microcredentials for FREE at

place.fi.ncsu.edu

Free professional development courses offered this Spring:

Teaching Statistics Through Inferential Reasoning - Spring 2019 (Feb-May 2019)

Teaching Mathematics with Technology - Spring 2019 (Feb-May 2019)

Registration Open

Teaching Mathematics with
Technology

Registration Open

Teaching Statistics Through
Inferential Reasoning

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