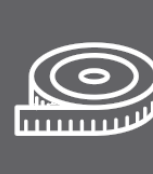


# Seven Lessons Learned From Implementing Micro-credentials



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## Introduction

More than a decade ago, Linda Darling-Hammond and her colleagues revealed that most professional learning experiences in the U.S. are not adequately preparing teachers to make changes in their classrooms (Darling-Hammond, Wei, Andree, Richardson, & Orphanos, 2009). Still, the traditional method of professional development has remained largely unchanged and often relies on short, one-size-fits-all workshops without ongoing and job-embedded aspects that support the impact in the classroom.

Micro-credentials provide an opportunity for educators to engage in rigorous, self-paced, job-embedded professional learning that is connected to the daily skills teachers need in their classrooms. This new wave in professional learning provides a way for teachers to earn recognition for the skills they acquire through formal and informal learning opportunities, to personalize their professional learning that meets their needs, and to take what they learn and apply it to their classrooms.

[The Friday Institute for Educational Innovation](#) has developed 15 micro-credentials related to Learning Differences in partnership with the [Oak Foundation](#) and [Digital Promise](#). These micro-credentials comprise three stacks (Working Memory, Executive Function, and Motivation) of five micro-credentials each and represent a scaffolded pathway for teachers to integrate the content learned in the Learning Differences MOOC-Ed into their classrooms. In our first three months of implementing micro-credentials, the Friday Institute has learned much about micro-credentials; including the following:

1. Teachers who earn micro-credentials want to earn more
2. Micro-credentials encourage teachers to apply skills to classroom practice
3. Micro-credentials scaffold teachers to engage at an increased level of rigor
4. Teachers can demonstrate competency/mastery in a variety of ways
5. Instructional design and online platform matter
6. Micro-credentials should not have a one-size-fits-all approach
7. Many questions still exist around micro-credentials

This paper will share the design elements and lessons learned from integrating micro-credentials into professional learning which can be supported through the Learning Differences MOOC-Ed. The data in this paper comes from the first micro-credentials in each stack.

### What is a MOOC-Ed?

Massive Open Online Courses for Educators (MOOC-Eds) are free professional learning designed for educators. MOOC-Eds are self-directed, peer-supported, project-based, and allow for rich blended learning opportunities. They can be accessed at any time, in any place, on any device.

Learn more at [mooc-ed.org](https://mooc-ed.org)

## Design Elements

While developing these micro-credentials, the Friday Institute considered several design elements including:

**Self-Directed:** Teachers can pursue micro-credentials at their own pace either on their own or as part of the MOOCs for educators.

**Job-Embedded:** Each of the micro-credentials is directly tied to classroom practice and provides a scaffolded approach to building useful classroom skills.

**Competency-Based:** Micro-credentials must measure an educator's demonstrated ability to apply one specific skill in the classroom context.

**Research-Based:** Micro-credentials are designed around skills that have been thoroughly researched and have a demonstrated impact on classroom practice.

This paper leverages data from our pilot in micro-credentials and details each of the lessons outlined above.



### Lesson #1: Teachers who earn micro-credentials want to earn more

After completing the Learning Differences micro-credentials, educators had an opportunity to participate in a survey to provide the Friday Institute with formative feedback. In these surveys, 97%

of respondents indicated that they wanted to pursue another micro-credential in the future. One teacher articulated in the survey that the micro-credentials "made me focus on what I am already doing, and where I need more support." Another shared that the micro-credentials "changed my way of thinking. I plan to make a lot of changes on how I teach my PK-8 students this coming school year." The comments and statistics above provide evidence that teachers are finding value in engaging with the micro-credentials.

**97%**  
of respondents  
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credential



### Lesson #2: Micro-credentials encourage teachers to apply skills to classroom practice

Often in professional development opportunities, teachers are asked to make applications to case studies or hypothetical students. The purpose of these activities is to provide scaffolding so that teachers will then be able to go back to their classrooms and make

the applications to their own students. However, whether or not those connections are made is often unknown; and data suggests teachers do not often change their practice after professional learning experiences (Yoon, et. al. 2007). Micro-credentials enable professional learning providers to see the connections teachers made to their own practice by asking teachers to submit artifacts that demonstrate how they have integrated the practice into their classrooms.

In the Learning Differences MOOC-Ed and micro-credentials, one participant provided the following reflection on a case-study about a student with working memory deficits:

“Watching Molly’s Story made me think of several students I have worked with who have demonstrated some of her traits. They have problems with remembering instructions, and doing multi-step tasks. In math, long division algorithms are especially challenging. The video gave me a new perspective on why they struggle, and I am inspired to handle their instruction differently with more understanding.”

In this reflection, the participant shared that she intends to return to her classroom and make substantive changes to how she teaches and supports students struggling with long division. In her micro-credential submission, we see more about how she actually enacted this plan:

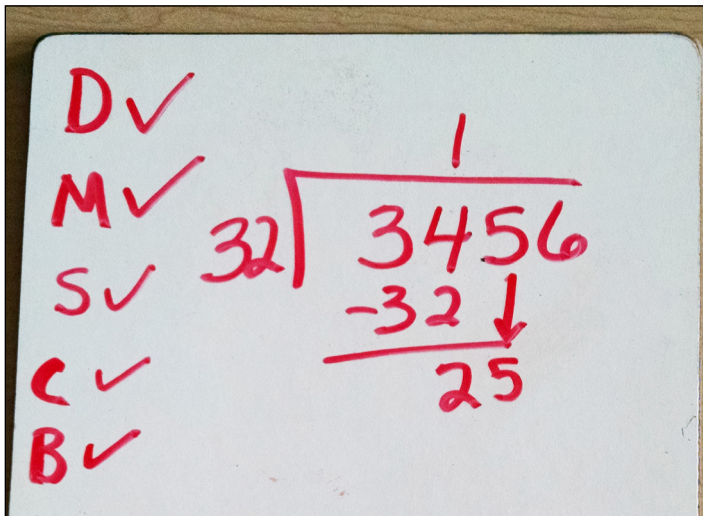


Figure 1: Student work using the “Does McDonald’s Serve Cheese Burgers” signal.

“I have already begun to use the technique of presenting directions visually as well as verbally, and purposely giving directions slowly and one step at a time [to support students’ working memory]. ... These include using cues to retrieve information, such as using an acronym Does McDonald’s Serve CheeseBurgers as a signal for the steps in long division (Divide Multiply Subtract Check Bring down), providing lots of practice in different ways (written, games, projects, movement), and working on practice tests to help with retrieval of information.”

Other participants shared similar experiences in a survey, explaining, “I adjusted my lesson plans a little so they included strategies to assist students in developing working memory. I had already used some strategies but not consistently. This exercise helped me by realizing I needed to write strategies into the plan in order to become consistent.”

These artifacts provide professional development providers with rich evidence of what teachers are

doing in their classrooms. The strategy shared by the teacher above is not revolutionary, but the connection between the strategy and working memory reflects a shift in mindset. This indicates that the Learning Differences MOOC-Ed changed her practice and approach to teaching.



### **Lesson #3: Micro-credentials scaffold teachers to engage at an increased level of rigor**

Professional development often asks teachers to make applications, but seldom asks teachers to think metacognitively or evaluatively. Carefully crafted micro-credentials can support educators as they engage in more rigorous learning.

The Learning Differences MOOC-Ed provided teachers with many resources to enrich their understanding of the various constructs presented (working memory, executive function, and motivation). Throughout the forums, participants share their reflections about the resources. The micro-credentials bring more structure to these reflections and ask educators to not only share what they learned from the resources provided, but also what made them effective. This push toward metacognition and evaluation facilitates more rigorous learning.

For example, one teacher provided the following reflection for her Demonstrate Understanding micro-credential in the working memory stack:

#### **Initial Demonstrate Understanding Reflection**

*“The video “Molly’s Story” provides a very good understanding of working memory. In this video, Molly talks about her working memory deficit in regards to not being able to recall information because she is so focused on other details of a conversation. The example that she cites is meeting a person and having a conversation with them. She stated that after a minute of talking with someone that she is unable to recall their name because she is focusing on the conversation that they are sharing. The working memory is not processing because she loses her concentration and focus on other factors of the conversation. Another good example that Molly cites is being given a set of directions to complete a task. She explains that she may be able to recall the first and last step of the directions but is unable to remember the steps in between. These are good examples of working memory deficit. It definitely shows a lack of ability to categorize and recall order.”*

Figure 2

The submission evaluation team found that this reflection did not provide information regarding how this video resource supported this educator’s understanding of working memory. In response, the teacher re-submitted the following reflection.

## Revised Demonstrate Understanding Reflection

*"The video "Molly's Story" provides a very good understanding of working memory. In this video, Molly talks about her working memory deficit in regards to not being able to recall information because she is so focused on other details of a conversation. The example that she cites is meeting a person and having a conversation with them. She stated that after a minute of talking with someone that she is unable to recall their name because she is focusing on the conversation that they are sharing. The working memory is not processing because she loses her concentration and focus on other factors of the conversation. It is as if she is so focused on the first thing that she hears in the conversation that she is unable to process consequent information. Then, as the information begins to overwhelm her, she focuses on the last thing that she hears. To a person with good working memory skills, they are able to take in all of the information and sort it and relate it to the topic. Another good example that Molly cites is being given a set of directions to complete a task. She explains that she may be able to recall the first and last step of the directions but is unable to remember the steps in between. These are good examples of working memory deficit. It definitely shows a lack of ability to categorize and recall order. I suppose I have a good working memory because I am very organized and I like order. My thought process works best when I am able to itemize things and generate lists. In addition, I enjoy accomplishing tasks on my list, which pushes me to complete the task at hand. I like to think of my working memory processing as a complex filing system. I take the information that I am given and sort it into categories that correspond in some manner. This process allows me to retrieve my thoughts much easier because there is a correlation between the information that I have stored."*

Figure 3

The revised reflection unequivocally provides more details, provides evidence of metacognition, and makes concrete applications to her own life and practice.

Users (like this one) are not being awarded for merely summarizing the content provided in the course. They are being encouraged to think about it critically; uncovering exactly what made it helpful and making applications to their practice. As one participant shared in the post-completion survey, micro-credentials "provided [her] with knowledge and tools to evaluate [her] current practice and to determine areas where [she] can implement additional strategies to support students in this area." While many teachers and learners do this on their own, the micro-credentials provide an opportunity for facilitated, structured reflections wherein teachers can get meaningful feedback.



### **Lesson #4: Teachers can demonstrate competency/mastery in a variety of ways**

When the Friday Institute designed the Learning Differences micro-credentials, the team hoped that educators would take this opportunity to make the learning experience work for them. Educators' implementations have surpassed expectations. Educators have



submitted a wide variety of artifacts to demonstrate their knowledge and skill. They have created poems, taken pictures, written moving and personal reflections, and video-taped their teaching. Through micro-credentials, teachers are taking control of their professional learning and personalizing their submissions to meet their context and their needs.

Each of the artifacts below were completed for the Learning Differences micro-credentials and highlight the variety of ways teachers are sharing their learning:

### Learner Motivation

This teacher helped build student agency by providing topic and presentation choice. These two boys, from a rural, hunting community, chose to complete their Spanish vocabulary and sentence structure lesson using PowerPoint.



Figure 4: Artifact submitted by a teacher showing how two students used PowerPoint for a class assignment.

### Partnering with Students in Working Memory

"The artifact is an example of what the student worked on to help memorize key terms and concepts for an upcoming assessment on the causes of the American Revolution. Since the student struggles with her working memory, she tends to retain information better with various visual images, this study strategy helped the student to use a "tool" that she knew would work best. During our study session, if she was struggling I would encourage her to visually think about the picture that she drew. This typically prompted the terms' definition and together, we could discuss and talk about the effects the law had on the colonists."

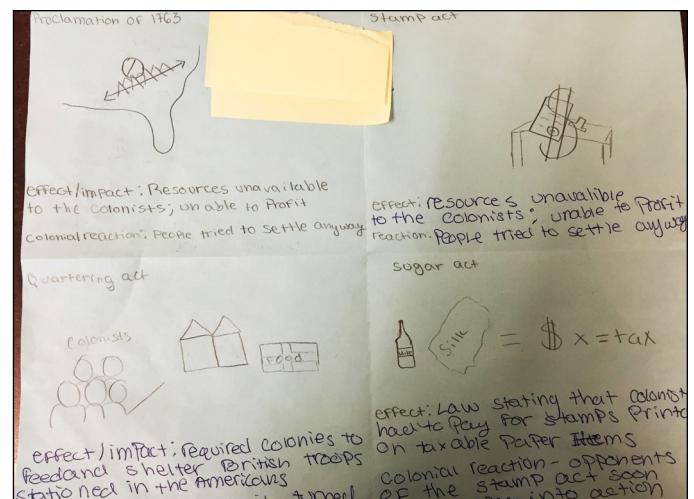


Figure 5: Artifact submitted by a teacher showing how one student used visuals to help with her working memory.

## Demonstrate Understanding in Executive Function

One teacher sent in a photo as part of her reflection demonstrating her understanding of executive function.



Figure 6: One teacher compared executive function skills to a chef managing a busy kitchen.

“An area where I see many students struggle is setting themselves up for class—having the foresight to gather the tools needed to complete a task efficiently. At a restaurant this concept is called “*Mise-en-place*,” or everything in its right place. To make a recipe, the chef will get out all of the dishes, ingredients, etc that he will need. For students, they might realize they are going to need a pen, scratch paper, and eventually a dictionary, so they can get all of that out at the same time to avoid disruptions or distractions later. A great story on this is from NPR: <http://www.npr.org/sections/thesalt/2014/08/11/338850091/for-a-more-ordered-life-organize-like-a-chef>”

## Working Memory

“I have written the following poem in response to this assignment. It is based on recent experience I had supervising a student, who I believe has working memory difficulties, in a state exam. It’s called ‘*Testing Time*’ and I try to capture the tasks that were very challenging for him, how easy it would be to give up and the importance of continuing to encourage and be present with the student in such a situation. There are also references to the accommodations which help a lot also.”

### ***Testing Time***

It is testing time. I feel so anxious. What if I forget and... All falls through the sieve?	Short questions, tick box I’m flying these. But steps in Maths Abstractions and Time tight composing!	The tapes are sealed now With my scripts In red envelopes. And we must hope  That those who sift my work Will hold a human hand Beneath the sieve And hear my clear strong voice	Amid the falling words...  And know That testing time Means more, Than we might yet understand.
My supervisor Nervous like I am. For failure is a Frightening thing.	Thoughts melt, words fail Too hard! I buckle. She holds things fast Encouraging: ‘I think you can’		

Figure 7: Poem entitled *Testing Time* submitted by an anonymous MOOC-Ed participant.





## Lesson #5: Instructional design and online platform matter

We found that it was important to consider how users would engage with the micro-credentials throughout the development process. During development, the team at the Friday Institute realized that micro-credentials are a very different way for educators to learn and engage online. The team developed a platform to facilitate this new mode of content delivery and quickly learned its importance.

The structure of the online platform must make it both clear and easy for educators to:

- know what the micro-credential seeks to measure,
- understand what they must do in order to earn the micro-credential,
- submit all of the necessary materials in order to earn the micro-credential, and
- get feedback and know why they did or did not earn a micro-credential.

During our soft launch in summer 2015, our platform clearly outlined the competency and provided clear guidance to educators about what they must do to earn the micro-credential. However, it failed to make it easy to submit all of the necessary materials and to understand why the educator received or did not receive the micro-credential. This fall, however, the Friday Institute improved its platform on the Professional Learning and Collaboration Environment (PLACE) website, where courses were offered, and found that educators felt much better supported.

In the initial implementation in the summer of 2015, 55% of educators started but did not finish any of the micro-credentials. After applying course improvements for the fall 2015 implementation, that number decreased to 27%. This indicates that the ease of submitting and understanding what is necessary has improved.

After course improvements were applied, the percentage of participants who started but did not finish the micro-credentials decreased from

**55% to 27%**

Additionally, this summer, no teachers re-submitted artifacts after receiving feedback. After implementing course improvements, however, 12 educators out of 23 have resubmitted after receiving feedback from their submissions. This demonstrates the importance of eliminating the barriers to completion by being transparent with participants about expectations and results.



## **Lesson #6: Micro-credentials should not have a one-size-fits-all approach**

As with any instructional design, there is not a silver bullet approach to making great micro-credentials. The framework developed for the Learning Differences MOOC-Ed has been well received and effective. However, as we begin to develop more micro-credentials, the content must be an important factor in the design and structure of the micro-credentials.

For example, the Friday Institute team has started taking the experience from the Learning Differences micro-credentials and applying it to other contexts, specifically our Fractions Foundations MOOC-Ed. While developing these micro-credentials we realized that taking the framework from the learning differences model and dropping it untouched into the Fractions course would not work. Just as with instructional course design, the content and goals of a learning experience must inform the development of the micro-credentials.



## **Lesson #7: Many questions still exist around micro-credentials**

While the Friday Institute team has learned a lot, many more questions than answers have emerged through this work. As we have developed upcoming courses, we have considered some of the following questions:

- What's the right grain size for a micro-credential?
- How do we scale micro-credentials?
- What are the necessary incentives?
- Should micro-credentials be connected to systemic processes like teacher licensure and relicensure?
- As more organizations build micro-credentials, how can we continue to ensure high-quality micro-credentials?

As micro-credentials become more prominent parts of professional development for educators, these and other questions will become increasingly important. The Friday Institute's micro-credential team is partnering with [Digital Promise](#) to continue these conversations and begin tackling the hard questions. Additionally, it is critical for leading professional development providers to come together and consider these questions, share experiences, and continue improving professional development so that it works better for educators across the globe.

## **Next Steps and Recommendations**

The Friday Institute is excited about the potential of micro-credentials based upon this first implementation around the Learning Differences MOOC-Ed. Currently, discussions about district pilots, state-level considerations for licensure and relicensure, and possibilities for micro-credentials as part of the undergraduate or graduate level degrees are underway. Superintendents, principals, and teachers alike seem curious about and interested in the possibilities of using micro-credentials as a catalyst for changing the way we think about and recognize professional learning.

The Friday Institute will be doing the following, at a minimum, in the next 12-18 months:

- Continue to implement and validate the Learning Differences micro-credentials
- Develop and implement micro-credentials for teaching fractions and statistics
- Conduct research around how earning micro-credentials impacts teachers' practice
- Explore micro-credentials for district and school leaders, with a focus on digital learning with industry partners
- Explore necessary levers and existing barriers for scaling micro-credentials
- Work with partners, such as Digital Promise, to build a model for peer-to-peer assessment of submissions

The Friday Institute encourages interested partners and educators to reach out, pilot, integrate into professional learning and licensure, and provide feedback to continue to build the knowledge base and improve the implementation of micro-credentials.

## About the Author

**Lauren Acree** is a Research Associate at the Friday Institute for Educational Innovation where she serves as the Policy and Personalized Learning Lead. Currently, Lauren leads the Learning Differences MOOC-Ed and micro-credentialing teams. She has developed content for the Leadership in Blended Learning program, contributed to the North Carolina Digital Learning Plan, and the State Leaders in Digital Learning Course. Lauren has also worked closely with the Alliance for Excellent Education and the U.S. Department of Education to plan and facilitate sessions for the Future Ready initiative to district teams across the nation. Prior to working at the Friday Institute, she worked as a special education teacher in Tulsa, Oklahoma. Lauren earned her Bachelor's degree at the University of Richmond in Richmond, Virginia and her Master in Public Policy from Duke University. You can contact her at [lkamilam@ncsu.edu](mailto:lkamilam@ncsu.edu) or 919-513-8577.

## About the Friday Institute

The mission of the Friday Institute is to advance education through innovation in teaching, learning, and leadership. Bringing together educational professionals, researchers, policy-makers, and other community members, the Friday Institute is a center for fostering collaborations to improve education. We conduct research, develop educational resources, provide professional development programs for educators, advocate to improve teaching and learning, and help inform policy-making. Learn more at [fi.ncsu.edu](http://fi.ncsu.edu).

### Recommended Resources from the Friday Institute

- Micro-credentials at the Friday Institute: [go.ncsu.edu/microcredentials](http://go.ncsu.edu/microcredentials)
- Personalizing Professional Learning with Digital Badges: [go.ncsu.edu/badges](http://go.ncsu.edu/badges)
- North Carolina Digital Learning Plan: [ncdlplan.fi.ncsu.edu](http://ncdlplan.fi.ncsu.edu)
- State Digital Learning Exemplars: [go.ncsu.edu/dlexemplars](http://go.ncsu.edu/dlexemplars)

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