CHRISTENSEN INSTITUTE

Developing a student-centered workforce through micro-credentials

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

The idea of student-centered learning is not new; teachers have long sought to design personalized, competency-based environments that are tailored to individuals and that empower students to drive their own learning. What is new is the emergence of an online learning ecosystem and, with it, the technical possibility of equipping all students with a student-centered model. Add to this mix COVID-19, which has provoked unprecedented demand for reinventing what teachers do, and it's the perfect combination of catalysts for a rapid conversion to student-centered schooling.

But a barrier remains. Most K–12 educators today don't have the skill sets necessary to run student-centered schools. This report helps dismantle that barrier by identifying specific student-centered competencies for educators in the field that can be stacked to create customized student-centered teaching micro-credentials.

Part 1 uses the Theory of Interdependence and Modularity as a framework for analyzing solutions for student-centered professional development (PD). One solution, micro-credentials, provides digital certifications that verify an individual's accomplishment in a specific skill or set of skills. To the extent that micro-credentials are specifiable, verifiable, and predictable, then they are modular in nature and overcome many of the challenges inherent in PD solutions with interdependent architecture. They could be the solution for making student-centered PD adaptable to a variety of models, affordable, easy to set up, and customizable.

Part 2 proposes 66 educator micro-credentials for student-centered teaching. No educator will need all the competencies; rather, the intention is to name a starter set from which administrators can stack together the micro-credentials their model requires. Fourteen research-based frameworks and 25 education leaders informed this starter set.

Part 3 profiles 14 leaders who are at the vanguard of student-centered teaching and shares their personal lists of the most important educator competencies for specific roles.

Part 4 offers recommendations for how to move the micro-credentialing ecosystem forward. Pioneering educators, school leaders, micro-credential issuers, and state and district leaders can take actions that hasten the arrival of a fully modular student-centered PD solution.

Much work remains, but micro-credentials for student-centered teaching could be the key to unlocking a personalized, competency-based education for all learners in all schools.

> Micro-credentials could be the solution for making student-centered PD affordable, easy to set up, and customizable.

INTRODUCTION

During an education conference in a country outside the US, one of us met a young architect who was lead designer for an elegant school building nearby. Curious to know more about this architectural prodigy, we initiated a conversation.

He explained that he was born in that town and had attended the local primary school here, where he was a horrible student. His teachers had deemed him mentally handicapped. Unfortunately, the school had no mechanism for figuring out his needs, let alone for accommodating them. In fact, schools assigned each student to a cohort of 6-year-olds and they remained with that cohort until high school graduation, with everyone moving in lockstep through identical curriculum—zero electives (even in high school), no variation in cohort group, and certainly no individual education plans.

Then, at age 10, this young man's life changed. His father accepted a job in a different country, where his parents enrolled him in school. Within days of the boy's arrival, the new school informed his parents that he was brilliant—and that he was dyslexic. His parents had never heard of dyslexia. To their knowledge, no such diagnosis had existed.

The architect ended his story by saying that thanks to the personal plan and strategies that the new school provided him, he learned to manage his dyslexia. He returned to his home country and became an accomplished student and exceptional architect.

A student-centered ideal

This young man's new school changed his life. His teachers there nurtured his genius while helping him transcend his personal barriers. Their approach is emblematic of what is meant when people say "student-centered learning." The term refers to an educational model that yields and bends to the needs and potential of each individual student first—not to the needs of the state, the teachers, the curriculum, the cohort, the politicians, the schedules, or any other element of the system.

Educators have varying formal definitions of student-centered learning. But, in general, they include elements such as personalized learning, competency-based learning, and learner agency.[1] The idea is to enable students to pursue a learning path that's tailored to their own needs and timing, with a variety of options, tools, and guides to empower them.

Although the concept of student-centered learning is not new and countless teachers have modeled student-centered practices for years, what is new is that a full online-learning ecosystem is emerging, and with it, the technical possibility to offer a flexible variety of options, tools, and guides to every learner. Online learning removes the design constraint of the past that said that, as a matter of practicality, school must mostly be a seated, standardized, single-modality proposition. As that design constraint falls, multiple new learning modalities become viable at scale—including flipped instructional models, peer coaching, individual tutoring, adaptive software, community apprenticeships, real-world projects—and blends of these modalities (hence the term **blended learning**).

Furthermore, widespread school closures that began in the spring of 2020 in response to COVID-19 added urgency to the hope for more flexible schools that can weave multiple modalities together seamlessly. The moment for a full swing to student-centered learning has arrived.

Reimagining educator competencies

Although the appetite and technical possibility for student-centered learning are stronger than ever, a looming barrier remains: Most K–12 educators today were trained for the traditional classroom model. They themselves grew up in the traditional model. Simply put, many teachers and school leaders today don't know how to run student-centered schools.

Shifting whole-hog from teacher-led to student-centered models is proving difficult. It requires the identification and then transformation of the knowledge, skills, and dispositions of the adults in the system. Unfortunately, many educators don't have the training or expertise to make that shift a reality.

There are roughly four million pre-K–12 teachers in the US. By and large, their credentialing programs prepared them to operate in traditional settings.[2] Furthermore, most educators built their body of professional expertise in conventional settings. Although some similarities exist between the expertise needed in both traditional and student-centered settings, enough differences remain that educators need new expertise if they are to be successful in a student-centered model. When educators lack student-centered expertise, the schools where they teach are prone to regress to conventional instruction.[3]

Bottom line, for the US or any country to center its learning model fully around the needs and highest potential of students, it must develop student-centered educators. How might that endeavor be possible? This paper examines four aspects of the answer.

- **Part 1** identifies both interdependent and modular strategies for equipping adults with student-centered competencies and analyzes each strategy's tradeoffs.
- **Part 2** proposes 66 educator micro-credentials that could help administrators more affordably and easily equip their teams to run student-centered schools.
- **Part 3** profiles 14 leaders who are at the vanguard of student-centered learning and shares their personal lists of the most important educator competencies for specific roles.
- **Part 4** offers recommendations for schools to help educators move forward with student-centered professional development.

PART 1. DEVELOPING STUDENT-CENTERED EDUCATOR COMPETENCIES

The K–12 community needs a new set of mindsets, dispositions, and skills to operate student-centered schools. What is the best solution for developing these competencies?

A few years ago as seven school teams were leaving a workshop that one of us had led, a technology specialist from Arkansas stayed behind to talk. Her team had completed our two-day event about student-centered learning. They had successfully drafted their goals and designed a new middle school experience premised on real-world projects; Socratic discussion; the teacher role shifting from instructor to coach; and students progressing along personalized, competency-based paths. But this leader was disappointed. She had hoped the workshop would give her tools to ready her staff for implementation. Although the workshop gave her a strategic vision, she felt empty-handed.

That experience caused us to wonder: Is there a way to name and develop those competencies collectively, rather than each school inventing a solution? That day we sketched Figure 1 to capture these questions.

These questions triggered a research project that is culminating with this report. For student-centered learning to become viable across schools, the system will need a realistic solution for equipping educators with student-centered competencies. Currently, no such system exists. To understand why this is the case, it is helpful to look at the current state of educator professional learning through the lens of innovation theory.

Specifically, the Theory of Interdependence and Modularity gives us a framework for understanding two existing methods for student-centered professional development and analyzing their strengths and weaknesses. Using this theory, we will analyze a third solution and explain why we think it has potential for helping to solve the educator development problem.

What is the Theory of Interdependence and Modularity? It comes from the engineering world, which views products as having an **architecture**, or a set of components and subsystems and a way that they all fit together. For example, the architecture of a table lamp includes such components as an electrical cord, the body of the lamp, a socket for the light bulb, and a lampshade on the top. The point where two components of a system fit together is called an **interface**. Some of the interfaces in a table lamp include the point where the light bulb twists into the socket, and the point where the cord plugs into an electrical outlet.

Some products have a **modular** architecture and others have an **interdependent** architecture. The architecture of a product determines several things about it, such as how quickly it can be set up and how easily it can be customized. There's a parallel between product architecture and the ways that schools have approached educator professional development for student-centered teaching.

For student-centered learning to become viable across schools, the system will need a realistic solution for equipping educators with student-centered competencies.

Modular interfaces allow for easy set-up and customizability.

Figure 1. Common questions around student-centered competencies

Modular approaches to professional development

Products with a modular architecture have standardized interfaces. The specifications for a modular interface allow the organizations developing the various components of a larger architecture to operate at arm's length. For example, different manufacturers can produce parts of a lamp—various types and colors of light bulbs, lamp shades, and lamp bodies—and sell them at Walmart without ever talking to each other about how to ensure their components fit together. They do not need to collaborate as they design their separate components because the specifications of the modular interface explain exactly how their components should fit together.

Modular interfaces allow for easy set-up and customizability. Components of the system can be changed or upgraded without having to redesign the entire system, as long as they conform to the specifications of the modular interface that connects them to the broader system. For example,

you can swap a "soft white" 60W incandescent bulb in a table lamp for a "daylight" 40W equivalent LED bulb without needing to replace the lamp because the various types of bulbs conform to a modular interface that defines how lamps and bulbs fit together.

Modularity in K–12 schools

There are a number of modular interfaces within the US education system. For example, credit hours and course sequences define modular interfaces whereby a series of courses taught by different teachers fit together to meet the requirements for a diploma. College and career academic standards aim to define a modular interface between K–12 schools and the college and university system. Edtech interoperability standards aim to define modular interfaces whereby various edtech products interact with one another. Lastly, teaching and accreditation standards define modular interfaces between educator development programs and K–12 schools. These interfaces aim to make it possible for different organizations across the education ecosystem to provide pieces of that ecosystem while working independently.

Unfortunately, when it comes to developing educators who can meet the needs of each student, the prevailing modular solutions do not work well. It would be nice if schools could just hire certified teachers capable of reliably operating their student-centered models. Yet few college or university programs offer robust training on student-centered teaching.[4] Those that do, such as the Texas Tech College of Education, George Mason University, and the University of Florida, give teachers valuable exposure to student-centered concepts, but don't produce teachers who can reliably operate in any given student-centered model without needing additional development to meet the specific requirements of the particular school.

When it comes to developing educators who can meet the needs of each student, the prevailing modular solutions do not work well.

Alternatively, it would be nice if schools could just hire professional development providers to give their teachers the expertise they need to run student-centered education. Currently, a number of organizations—including Ready to Blend and the Christensen Institute—offer valuable workshops on student-centered learning. But even the best workshops can't ensure that educators have all the actionable skills they need to hit the ground running with student-centered teaching. Schools and educator teams still have to figure a lot out on their own.

Three keys to making modularity work

For modular components in a system to work well together, Modularity Theory points to three essential conditions.[5]

1. **Specifiability**: The organizations on both sides of the modular interface need to know what to specify—which attributes of the component are crucial to the operation of the system, and which are not.
2. **Verifiability**: They must be able to measure those attributes so that they can verify that the specifications have been met.
3. **Predictability**: There cannot be any poorly understood or unpredictable interdependencies across the modular interface. When the components on both sides of the interface come together, they need to reliably produce the desired outcomes.

When these conditions are met, the components of a system that come from different organizations—such as educator development and student-centered model design—can function together reliably even though the organizations that create them operate separately.

The last decade saw considerable progress in approaching specifiability. A number of prominent national organizations—such the Aurora Institute (formerly iNACOL),[6] the Council of Chief State School Officers (CCSSO),[7] and the International Society for Technology in Education (ISTE)[8]—created standards that specify knowledge, skills, and mindsets educators need for student-centered teaching. These efforts help educator development programs design learning experiences that address what schools need in

order for their educators to successfully implement student-centered learning. In effect, they start to define the requirements for potential modular interfaces between educator development programs and student-centered schools.

But specifiability alone does not ensure that modular interfaces will function as needed. Verifiability and reliability are also key. Unfortunately, the predominant modular approaches to educator development—such as college-based credentialing and professional development workshops—fall short because they can't satisfy these latter two conditions.

The lack of a verifiable and predictable way for schools to outsource student-centered professional development to third-party modular solutions is a problem. They are missing out on the affordability, ease of set-up, and customizability that a modular world offers. If a school could hire any number of outside organizations to reliably train its staff according to well-defined specifications, it could choose from a variety of providers, which would both drive down costs and allow for easy customization. Yet that modular world simply does not exist. And until it emerges, the transformation to student-centered teaching must rely on integrated alternatives.

Integrated alternatives

In the early stages of a new product or system, the interfaces between the parts are often messy and unpredictable. The components affect each other in uncertain ways. This means that to figure out how to get reliable performance, a single team or organization usually needs to control every aspect of the design and production or else risk encountering unreliable performance issues. In this stage, a system is said to have an interdependent architecture.

Take Lockheed Martin's F-22 fighter jet. To push the frontier of aircraft performance, Lockheed Martin couldn't just build the F-22 by clicking together standard aircraft parts. It needed to design the aircraft end-to-end, with control over all the interdependent interfaces, so its engineers could count on reliable performance.

In a similar way, school systems that have wanted reliable performance in their student-centered implementations have used integrated solutions. They've chosen between two basic approaches: internally designed professional development and model provider professional development.

Internally designed professional development

One approach is for a school or district to internally design its student-centered professional development (PD) according to its needs, sometimes in collaboration with consultants. For example, New Jersey's Morris School District appointed its own maverick team to bring about system-wide transformation. The change began five years ago when the superintendent, Mackey Pendergrast, invited all his administrators to read *Blended: Using Disruptive Innovation to Improve Schools* and attend

a three-day "Blended Academy," which awakened their desire to update their traditional classroom model. They launched a series of PD initiatives to transform teaching, including staff training on social and emotional learning; restorative practices; curriculum redesign; blended learning; and Canvas, Google Classroom, and i-Ready software. Today, many look to Morris School District as a vanguard of student-centered learning.

Model provider professional development

The other type of integrated approach comes from model providers. A model provider is an organization that partners with schools to provide a bundle of comprehensive, aligned, and well-informed instructional resources.[9] Some well-known model providers include Summit Learning, Acton Academy,[10] and New Classrooms. With model providers, an outside organization provides both the learning model and the educator development for empowering educators to operate that learning model. The model provider does the heavy lifting of figuring out how to integrate the unpredictable interdependencies between educator development and their particular student-centered learning model. Schools then adopt the whole package as one integrated bundle.

Analyzing integrated alternatives

Both of these approaches—internally designed PD and model provider PD—have advanced student-centered teaching. Integrated approaches give pioneering education leaders the maximum degree of freedom for tinkering with their student-centered models and their PD at both sides of the interface until they discover what works. For example, a school pursuing student-centered teaching may find that, in addition to training teachers on particular edtech tools or strategies, they also need training on mindset changes. Alternatively, a school may find that its PD processes don't provide educators with frequent enough feedback and may, therefore, make adjustments accordingly. Shifts and adjustments to PD are possible with an integrated architecture.

However, as we look to the scaling of student-centered models across more schools and districts, both of the integrated alternatives have drawbacks.

Internally designed PD requires significant investment to get it to work well. Pioneering educators need to spend time studying other student-centered schools and their models to get a sense for the solutions they want to build. They need to experiment, pilot, and refine their own model to a point where they start seeing the results they hope for. Then they need to figure out how to teach their staff the model. It's a process that takes years. And although we celebrate the growing number of schools that undertake the effort, for most it is out of reach. Working with consultants, such as 2Revolutions, Education Elements, or the Highlander Institute, can help make the internal design process quicker and easier. But consultants have their own costs that make them hard to afford.

Pioneering educators need to spend time studying other student-centered schools and their models to get a sense for the solutions they want to build.

Model provider PD can make the transition to student-centered learning easier, but working with model providers can also prove unviable for many schools for two reasons. First, model providers, like consultants, can be expensive. Second, the models available may not meet a school's needs. The Teach to One model only serves middle school math. The Summit Learning model only serves grades 4–12 in core subjects. Acton Academy's model doesn't conform to some of the policy mandates under which public schools must operate. Furthermore, a school may find that its curricular priorities do not match the model provider's recipe. Model providers are one of the most scalable options in the field right now. But even so, their models do not fit with many of the varied needs across the K–12 landscape.

In sum, internally designed solutions and model providers have both made pioneering progress. By taking an integrated approach, they have advanced the development of student-centered models and the competencies

necessary to make student-centered learning work. But for student-centered learning to reach a broader scale, the development of educator competencies will need to be as reliable as integrated solutions, but even more affordable, easy to set up, and customizable to varied needs.

The table that follows summarizes the differences between interdependent architecture, which leads to integrated solutions, and modular architecture with modular solutions.

Figure 2. Key differences between interdependence and modularity

Integrated	MODULAR
• Optimized for functionality and reliability	• Optimized for price and ease of setup
• In-house	• Often outsourced
• Designed to meet the intricate needs of a specific system	• Designed to align to industry standards so that components are plug-compatible and can be mixed and matched
• Synonymous with proprietary architecture	• Synonymous with open architecture
Example outside of education:	Example outside of education:
• F-22 fighter jet	• Table lamp and light bulbs
Examples in education:	Examples in education:
• Internally designed PD	• Credits taught by different teachers can be mixed and matched to earn a diploma
• Internally designed PD plus external consultants	• Many edtech products are plug-compatible with the main Student Information Systems

The potential of micro-credentials

Micro-credentials may be the solution that takes student-centered learning to the next level. Micro-credentials are digital certifications that verify an individual's accomplishment in a specific skill or set of skills. Four attributes characterize micro-credentials.

1. **Competency-based:** To earn a micro-credential, an educator must submit evidence—such as a classroom video, student surveys, or lesson plan—to demonstrate their competence in a skill.
2. **Personalized:** Individuals or schools can choose the stack of micro-credentials to earn based on each educator's individual needs and professional goals.
3. **On-demand:** Educators can start and finish a micro-credential whenever they want.
4. **Shareable:** Educators can share their micro-credentials on resumes and as a way to earn professional endorsements.[11]

In November 2015, BloomBoard and Digital Promise announced a partnership to launch a micro-credential platform to support competency-based learning for teachers.[12] Since then, the two organizations have parted ways, but continue to be among the most prominent groups offering micro-credentials. At present, other organizations such as the National Education Association (NEA) have also developed micro-credentials.[13]

Modularity Theory illuminates why micro-credentials hold promise as the primary mechanism for building a modular world for student-centered educator development. At the same time, the theory points to potential weaknesses in micro-credentials that will need to be managed.

Assume for a moment that micro-credentials are fully specifiable, verifiable, and predictable. If that is the case, then they overcome many of the challenges inherent in other PD solutions. While internally designed PD is difficult, time-consuming, and expensive to develop, micro-credentials can be outsourced from external providers while remaining plug-compatible with a school's model. While model provider PD does not offer easy

alterations, micro-credentials can be stacked together in any number of ways to meet the needs of a wide variety of models. And while the prevailing semi-modular solutions—such as university courses and PD workshops—are not model specific and do not reliably prepare educators to hit the ground running, the chunked, stackable, and competency-based nature of micro-credentials can make them highly responsive to schools' needs.

The chunked, stackable, and competency-based nature of micro-credentials make them highly responsive to schools' needs.

To the extent that they meet the three requirements for modularity, micro-credentials could be just the solution schools need. But do micro-credentials actually meet the requirements?

Let's start with **specifiability**. The organizations on both sides of a modular interface (in this case, the school on one side and the micro-credential provider on the other) need to know what to specify—which competencies are crucial.

In the early days of student-centered learning, specification would have been impossible. The models were evolving, so the knowledge, skills, and mindsets teachers needed in those models were unclear. The field needed pioneering schools and model providers to invent integrated solutions in order to work out the interdependencies between educator development and the needs of student-centered learning models.

But now, by learning from the years of accumulated experience of the pioneers in student-centered education, specifying the granular PD needs of a variety of student-centered models is becoming viable. In fact, Part 2 of this paper attempts to do exactly that. The more clearly and accurately we can specify the competencies for student-centered learning, the more viable micro-credentials become.

How about **verifiability**? Schools must be able to measure student-centered competencies so that they can verify that the specifications have been met.

Micro-credentials' major innovation is their attempt to add verifiability to educator standards and modular professional development. Educators earn micro-credentials not by completing a course of training, but by demonstrating to paid evaluators their mastery of the competencies specified for that micro-credential.

The typical way for these micro-credential issuers (such as Digital Promise and BloomBoard) to verify competency is by requesting that a micro-credential candidate submit a collection of artifacts that demonstrate the intended skillset. The artifacts range from classroom videos to student surveys to lesson plans. One risk in terms of the verifiability of micro-credentials is whether issuers can rely on these artifacts as sufficient evidence to fully verify competency. Furthermore, candidates could "game" the artifacts by submitting borrowed or doctored artifacts that aren't truly representative of the educator's actual practice. Issuers will need to test artifacts and their verification systems carefully to ensure that the evidence is sufficient and authentic.

The third consideration is **predictability.** An educator with the right stack of specified micro-credentials must plug into a job function at the school in a way that reliably produces the desired outcomes.

School leaders may find that, even if a teacher candidate has a set of micro-credentials, they still can't be certain that the new hire will have what it takes to function in a particular role. In other words, the micro-credential stack proves to be unpredictable. In that case, the source of the problem stems from the other two conditions. It could be that the bundle of micro-credentials may not yet fully specify the complete set of essential competencies needed for that particular role. Or, it may be that the system for verifying competencies fails to accurately assess essential competencies before awarding the micro-credentials.

These potential limitations of micro-credentials will certainly bear out for some schools that try to use them. Nonetheless, we are optimistic that micro-credentials are closer to bringing about a modular world for student-centered educator advancement than are other solutions presently available. They are especially promising in three scenarios. For one, many schools might find the alternatives to be lacking: internally designed PD is too difficult; model provider PD is ill-suited to their needs; and training workshops and degree programs are ineffective. Such schools are likely to view micro-credentials as the most viable option. Although pioneering schools on the frontier of student-centered learning—the most demanding schools—are likely to opt for the high performance of integrated solutions, the rest of the pack could find that a modular alternative like micro-credentials is plenty sufficient.

Second, even the most demanding schools may find that a hybrid of micro-credentials and internally designed PD solutions works best for them. For example, a school could use some micro-credentials to develop basic competencies, but then supplement those with training and experiences that the school designs itself.

Third, micro-credentials, like any innovation, should improve over time. In response to feedback between micro-credential issuers and the schools that hire them, micro-credentials will evolve. They'll get better at delivering the predictability that more demanding schools need from them.

Although the first instantiations of micro-credentials for student-centered teaching will not be a perfect solution for all professional development across the student-centered education landscape, they are nonetheless an experiment to continue pursuing. They have the potential to satisfy the three requirements for modularity in ways that other solutions can't. Because of their promising modular architecture, they could be a key catalyst in getting student-centered teaching to a tipping point where its practices gain widespread adoption across K–12 education.

Micro-credentials could be a key catalyst in getting student-centered teaching to a tipping point where its practices gain widespread adoption.

Figure 3. Professional development options for student-centered teaching

	Integrated options		MODULAR OPTIONS	
	Internally designed PD	Model provider PD	Workshops and degree programs	Micro-credentials
Pros	Designed to meet the needs of the specific school or school system	Provides a soup-to-nuts solution that's already been rigorously tested and improved	Relatively easy and affordable to access	Potentially more adaptable, affordable, and customizable certification of educator competencies
Cons	Difficult, time-consuming, and expensive to develop	Requires conformity to an external provider's model	Unreliable results because of gaps with specifiability, verifiability, and predictability	Still uncertain if specifiability, verifiability, and predictability can be fully attained
Examples	Morris School District's maverick team	Summit Public Schools, Acton Academy, or Teach to One	University- or workshop-based programs in student-centered learning, like Ready to Blend	BloomBoard or Digital Promise micro-credential programs

PART 2. SPECIFYING STUDENT-CENTERED COMPETENCIES

Although student-centered educator competencies will vary by school and role, the field can work together to specify the collective set.

We've established that, for schools to realize the benefits of a modular world, they need a student-centered PD solution that is specifiable, verifiable, and predictable. We are devoting Part 2 of this paper to make headway toward that first requirement: *specifiability*. The idea is to specify precisely which competencies educators need within student-centered schools so that micro-credential issuers (such as BloomBoard and Digital Promise) and the organizations they partner with to author micro-credential content can develop micro-credentials that precisely match those specifications.

One way to visualize this project is to imagine a bin of LEGO bricks. Each brick represents a student-centered competency. The goal is to ensure that the bin contains all of the bricks that the broad variety of student-centered school leaders needs to be able to build their specific school models.

No school will need all of the competencies that those LEGO bricks represent; rather, the bin of LEGOs represents the collective set from which each school leader can select the bricks she needs to create specific stacks of competencies for each role. A leader might select a stack of three red bricks, two blue tiles, and one set of wheels for a face-to-face teacher, an entirely different stack for a team of instructional designers, and yet a third stack for the administrators.

We wondered: How many student-centered competencies would the LEGO bin need to enable all student-centered schools to build their stacks? Would the number be eight—or more like 8,000? And what competencies would be in that bin?

Developing a hypothesis

We began by sifting through several frameworks to develop a hypothesis about which competencies to include in our starter bin. In total, we deconstructed frameworks from 14 organizations: Acton Academy, the Aurora Institute (formerly iNACOL), the Bill & Melinda Gates Foundation, BloomBoard, CCSSO, CompetencyWorks, Education Elements, Great Schools Partnership, iLead Academy, Master Teacher, Mesa County School District 51, Quality Matters, Summit Public Schools, and the Virtual Learning Leadership Alliance.

That process resulted in a starter list of 84 competencies, including mindset-type competencies, such as "Modeling a Growth Mindset" and "Embracing Change"; tactical practices, such as "Giving

Feedback" and "Building Relationships of Trust"; implementation skills, such as "Procuring Hardware and Software" and "Organizing Your Team"; and several other clusters of competencies.

Fast-forward, it's February 27, 2020. Three long tables created a U-shape large enough for 25 chairs at the AT&T Conference Center in Austin, Texas. As the invitees entered the room, it seemed we needed a red carpet. Assembled together were some of the pioneers of the next generation of K–12 schools. The 25 participants who made it a star-studded event are listed in Figure 4.

Our task?

Pressure-test our starter list of competencies and develop a consensus about the final list to specify in this report.

Although the 25 participants in our Student-centered CEO Summit included only a fraction of the notable pioneers of student-centered schools, the attendees represented a cross-section of expertise in student-centered learning. David Fairman, managing director of the Consensus Building Institute, facilitated the discussion.

By the end of the Summit, plus several follow-up emails, we'd agreed to our best hypothesis of 66 competencies that form the collective building blocks of student-centered schooling.

The map of student-centered competencies

In response to feedback from participants in the Student-centered CEO Summit, we developed a map that includes a total of 66 student-centered educator competencies, grouped into 13 sets, or professional endorsements. Figure 5 depicts the full map of student-centered competencies. Figure 6 shows the recommended professional endorsements for the teacher role, Figure 7 for members of a school design team, and Figure 8 for school leaders. Although these maps are imperfect, they offer a starting point and indicate directionally where student-centered educators should head.

Figure 4. Student-centered CEO Summit participants

Name	Organization
Malika Ali	Highlander Institute
Joe Battaglia	The MET Rhode Island
Alin Bennett	The Learning Community
Anirban Bhattacharyya	Transcend Education
Michael Brophy	West Valley School District #208
Mira Browne	Summit Public Schools
Matthew Clayton	Slope School, an Acton Academy
Mallory Dwinal-Palisch	Oxford Teachers Academy
Sami Forster	Wisconsin Digital learning Collaborative
Jill Gurtner	Clark Street Community School
Virgel Hammonds	KnowledgeWorks
Ulcca Hansen	Education Reimagined
Christopher Harrington	Michigan Virtual
Christie Huck	City Garden Montessori
Jeremy Jones	The Learning Accelerator
Nicholas Palomino Mendoza	Teach for America Houston
Reid Newey	Davis School District
Johnna Noll	Norris School District
Jonathan Oglesby	Ready to Blend
Jeff D. Sandefer	Acton Academy
Christina Theokas	Turnaround for Children
Devin Vodicka	Altitude Learning
Natalie Woods	Education Elements
Kelly Young	Education Reimagined
Burak Yilmaz	Harmony Public Schools

Figure 5. The full map of student-centered competencies

Professional Endorsements

- Foundations of Blended Learning
- Foundational Infrastructure for Blended Learning
- Foundational Student-centered Mindsets
- Empowering Learners
- Student-centered Diversity, Equity & Inclusion
- Competency-based Learning
- Socially Embedded, Open-walled Learning
- User Experience (UX) for Students
- Online Content
- Student-centered Culture
- Student-centered Leadership
- Advanced Student-centered Leadership
- Coaching Individuals & Teams

Figure 6. Student-centered competencies for teachers

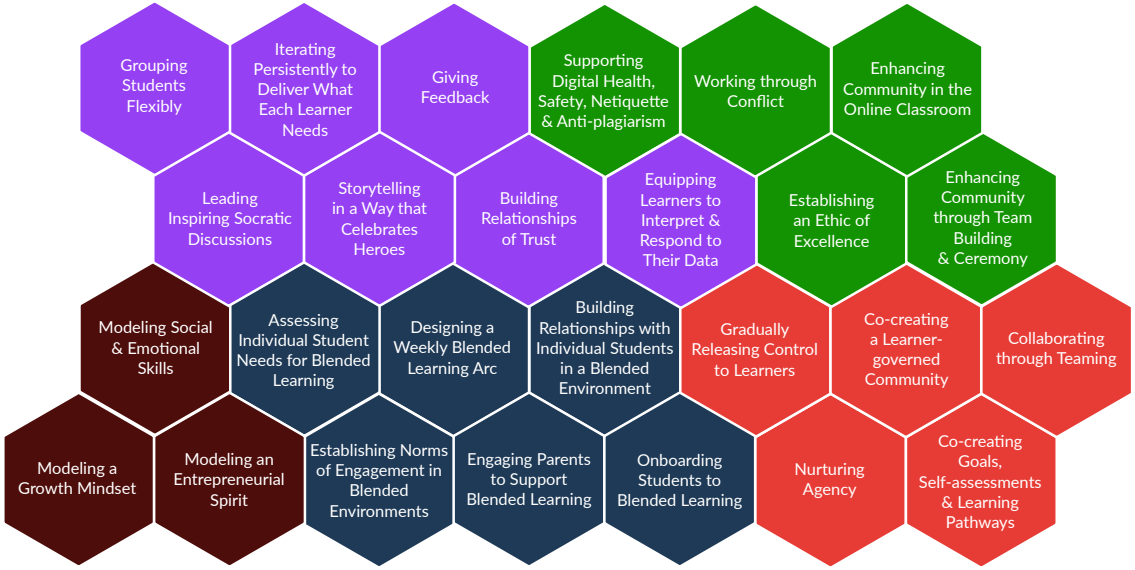


Figure 7. Student-centered competencies for design teams

Figure 8. Student-centered competencies for school leaders

PART 3. EXPERTS' CHOICES OF COMPETENCIES

We invited participants of the Student-centered CEO Summit to specify the stacks of competencies that they need most in their respective programs, based on their philosophy of learning and their school's circumstances.

For micro-credentials to truly be modular, schools must be able to mix and match the competencies they are seeking for each role. In the following 14 profiles, education leaders describe their program, name their stack of 10 essential competencies for their program, and then name their stack of competencies that are important to a specific role in that program.[14]

Burak Yilmaz

Project Director

Harmony Public Schools (charter network)
Highlighted school: Representative example

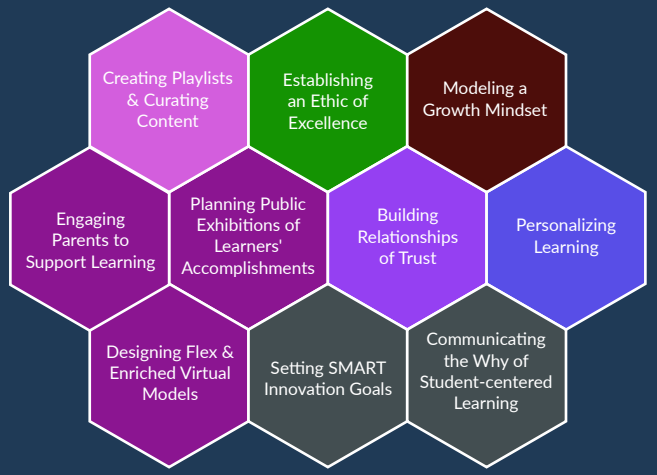
Highlighted school's beliefs include:

All students are capable of learning and achieving at high levels through a rigorous and relevant curriculum that prepares them for higher education and reinforces lifelong learning skills • All learning is underpinned by a web of relationships that forms a strong culture • Instruction is learner-centered with emphasis on STEM, powered by a combination of personalized learning approaches, including blended learning and project-based learning • The personalized learning model leverages data and adaptive learning technologies while addressing social and emotional learning needs of students • Educator and student voice and choice are valued in lessons, projects, assignments, and activities connected to community and global issues • Students engage in yearly open-ended, standards-based projects, engaging them in service-learning as they seek to develop solutions to problems and address community needs.

Highlighted role: Face-to-face teacher

A classroom teacher is a learning facilitator, guide, and resource. The teacher has a strong understanding of personalized learning and knows students well to cater to their academic and social-emotional needs, guiding them to maximize their learning potential. The teacher models growth mindset and lifelong learning, nurtures student agency, designs activities connected to real-life problems, gives timely feedback, helps students set goals and track progress, uses data to inform planning and modify instruction, gives students voice and choice, collaborates with colleagues to elevate teaching and learning, and engages parents in supporting students.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL



ESSENTIAL COMPETENCIES FOR THIS ROLE

Christopher Harrington

Director

Michigan Virtual Learning Research Institute
Highlighted school: Representative example

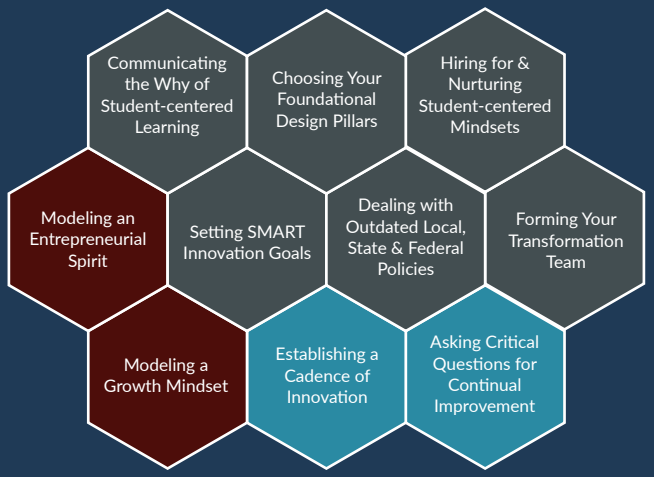
Highlighted school's beliefs include:

Effective educational experiences for students must be student-centric • Deep learning occurs when students make personal connections with educational activities •Technology will enrich, accelerate, and extend learning • The use of school technology will prepare students to function more effectively in an ever-changing global society • Students and staff must be skilled users of technology; acquiring and maintaining technology skills is a lifelong process • Teachers and staff must strive to be leaders in educational technology for the benefit of student learning • Students and staff must have ubiquitous access to reliable and appropriate technology resources • Providing blended learning experiences for students will help meet the unique needs of diverse learners while maintaining individual accountability in a rigorous academic environment • Students and staff must understand and apply the ethical guidelines associated with the use of technology • Parents play an integral role in their children's education, and they must actively partner with teachers and administrators to connect formal and informal uses of technology.

Highlighted role: School superintendent/director

This individual is responsible for working with the school's or district's board of directors to ensure that the curriculum and the will of the greater school community are delivered in a way that meets the expectations of stakeholders. This individual serves as the instructional leader, the culture builder, and the change agent to deliver on these expectations.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL



ESSENTIAL COMPETENCIES FOR THIS ROLE

Christie Huck

Chief Executive Officer

City Garden Montessori School

Highlighted school: City Garden Montessori School

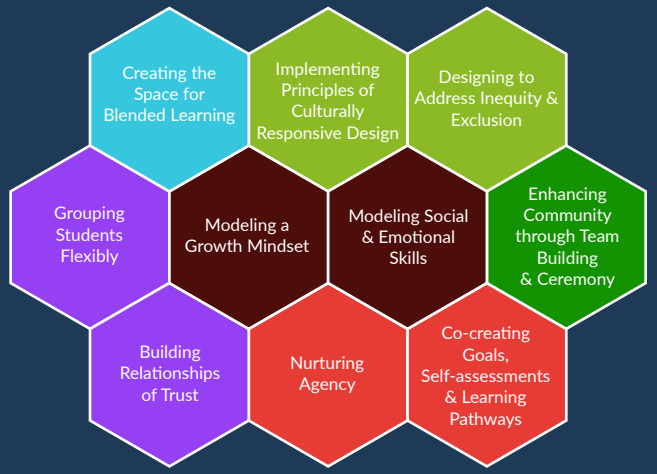
Highlighted school's beliefs include:

All children have the opportunity to realize their full potential, and outcomes cannot be predicted by race or income • Racial equity can and will be achieved by growing generations of individuals whose physical, intellectual, social, and emotional needs are deeply met; who have meaningful relationships with people of different racial identities and who are aware of and have embraced their own racial identities; who understand systemic racism; and who feel connected and accountable to something larger than themselves • Children who are nurtured and educated in environments that are committed to all of these things will serve as catalysts for institutional and cultural transformation. As children become adults, and as the families and neighborhoods connected to these schools are impacted, we believe that this model can ultimately lead to incremental progress toward racial equity in St. Louis and beyond, over generations.

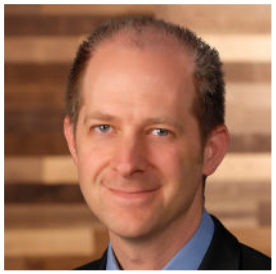
Highlighted role: Guide

This role prepares the physical and emotional environment so that children's desires to learn and explore are met, and all obstacles to learning are removed. The Montessori guide spends time preparing learning materials; observing children's actions and how their innate "sensitive periods" reveal themselves; planning lessons and activities that respond to individual children's needs; and facilitating opportunities for children to practice respect for themselves and one another, contribute to the community, and build a practice society within the classroom.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL



ESSENTIAL COMPETENCIES FOR THIS ROLE



Devin Vodicka

Chief Impact Officer

Altitude Learning

Highlighted school: Altitude Learning Micro-School

Highlighted school's beliefs include:

Students should develop agency, collaboration, and problem-solving skills through a whole-child, competency-based, authentic learning experience • Students' days should include a blend of whole-class community-based activities and individualized time.

Highlighted role: Teacher

This is a learner-centered school. Students are organized into grade spans with a maximum of 150 students in each cohort (K–2, 3rd–5th, and 6th–8th). Teachers work in teams of five to seven to serve each cohort.

ESSENTIAL COMPETENCIES FOR THIS ROLE

Jeff Sandefer

Lead Evangelist

Acton Academy Network

Highlighted school: Acton Academy Austin

Highlighted school's beliefs include:

Every person who enters our doors is a genius who deserves to find a calling that will change the world.

Highlighted role: Guide

A guide is a game maker who offers young heroes, or learners, games to play next. A guide also equips, inspires, and connects learners with powerful launches for the day. The person in this role asks Socratic questions and offers growth mindset praise.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

**This competency is specialized to Action Academy. It is not on the shared map.*

ESSENTIAL COMPETENCIES FOR THIS ROLE

**This competency is specialized to Action Academy. It is not on the shared map.*

Jill Gurtner

Principal

Clark Street Community School (CSCS)

Highlighted school: CSCS

Highlighted school's beliefs include:

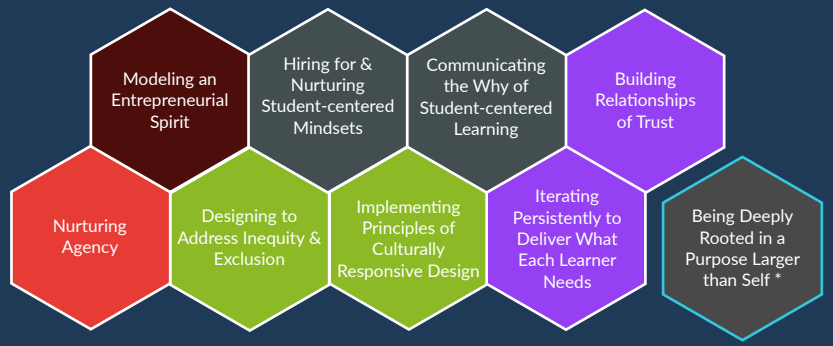
We will transform public education to ensure that every child deeply understands their personal genius and confidently understands how they can use it for the greater good • There is a powerful, mutually beneficial relationship between a supportive and empowering community and fostering the inner genius of every individual • We are all capable of brilliance, and our community not only supports but expects brilliance from all • We raise all individuals and the collective up to create a transformational educational experience • We continue to offer this transformational experience to all in the CSCS community while sharing what we have learned with the larger educational community in order to inspire change on a broader level.

Highlighted role: Principal/leader of an innovation zone within a school district

Because the goal of an innovation zone within a school district is to work to disrupt from within the system, this role requires the leader to both be visionary and strategic. This person must be able to both lead and empower others to lead within the day-to-day operations of the innovation zone and translate the learning that is happening to others outside of the innovation zone in a manner that fosters and supports larger system change. In a system like public education, which has had a tremendous capacity to resist significant change, this can be very challenging to navigate.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

ESSENTIAL COMPETENCIES FOR THIS ROLE



**This competency is specialized to CSCS It is not on the shared map.*

Johnna Noll

District Administrator

Norris School District

Highlighted school: Norris Academy

Highlighted school's beliefs include:

Learner profiles engage learners in self-reflection and provide an active, multidimensional picture of the learner • Learner profiles are used to co-design personalized plans and multidimensional pathways that are composed of relevant, contextualized learning experiences • Competency-based continuums create a framework for learning, allowing learners to navigate competencies to demonstrate proficiency • An interdependent team of professionals forms a network to support learner engagement and develop self-advocacy • Learner-centered supports provide scaffolded practices and tools that build self-directed learners who are inventive and have agency in their own learning • Operating structures are redesigned with clear policies and protocols that create space for learner-centered transformation.

Highlighted role: Face-to-face teacher

Learning specialists are part of a learning network that matches educational services and experiences that support the personal needs and interests of learners. This person uses the learner profile to guide learners to an understanding of self across four dimensions: academic, employability, citizenship, and wellness. The specialist uses the profile to confer with learners to develop plans that identify multidimensional goals reflecting each learner's progress across the competency framework. They co-design pathways that identify learning experiences leading to goal attainment. Specialists confer with learners to discuss progress, provide feedback, and gather evidence of competency attainment, then adjust plans and pathways to reflect that learning. Specialists build positive relationships and model practices of successful learners.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

**This competency is specialized to Norris School District. It is not on the shared map.*

ESSENTIAL COMPETENCIES FOR THIS ROLE

**This competency is specialized to Norris School District. It is not on the shared map.*

Mallory Dwinal-Palisch

Co-founder & CEO

Oxford Teachers Academy

Highlighted school: Oxford Day Academy

Highlighted school's beliefs include:

All students are capable of achieving rigorous college preparatory academics when personalized learning is coupled with socio-emotional supports • Social justice-oriented, project-based learning helps students to become engaged, productive members of our society • Beliefs are rooted in six core values, reflective of the diverse cultures of the East Palo Alto community: 1) *Growth*: The growth mindset is essential to achieving excellence 2) *Ganas*: Ganas is a Spanish word reflecting the urge to persevere and achieve; it gives us the strength to overcome obstacles 3) *Kujichagulia*: Kujichagulia (translated to English as "self-determination") is ownership to define ourselves, name ourselves, create for ourselves, and speak for ourselves. It is one of the seven principles of Kwanzaa 4) *Feveitokai'aki*: Feveitokai'aki (translated to English as "unity") is the commitment to sharing, cooperating, and fulfilling a mutual obligation. It represents one of the four pillars of the Kingdom of Tonga 5) *Equity*: Equity is the recognition of injustice in its many forms and the active pursuit of fairer outcomes 6) *Compassion*: Compassion is the genuine concern for the well-being of others and the willingness to act in promotion of that well-being.

Highlighted role: Socio-emotional learning coach (SELC)

This role provides metacognitive coaching, pastoral care, and interpersonal accountability to our young people. The SELC is the mentor and guide who helps our young people discern how to navigate their own learning goals.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

ESSENTIAL COMPETENCIES FOR THIS ROLE

Michael Brophy

Superintendent

West Valley School District #208

Highlighted school: Wide Hollow STEAM Elementary

Highlighted school's beliefs include:

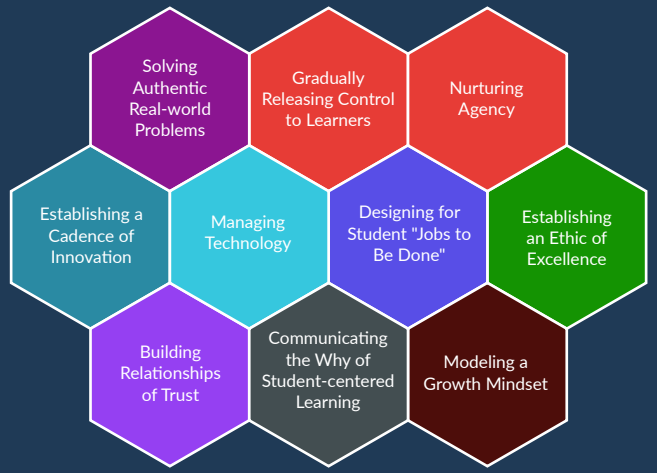
The four C's of 21st-century learning are communication, collaboration, complex problem-solving, and creativity • Science, technology, engineering, the arts, and math are key content areas to practice the 4 C's • Blended and personalized learning allows students opportunities to have ownership over time, place, and pace of their learning • Flexible seating classrooms are a priority • We provide a STEAM lab where students can participate in STEAM lessons with readily available tools in a flexible, collaborative, and creative environment • We serve the educational needs of all students: ELL, SPED, and highly capable • Positive behavior reinforcement, relationships, and growth mindset can overcome any obstacle to learning • Staff take risks, innovate, and don't mind disrupting educational norms.

Highlighted role: Principal

The principal possesses competencies that allow students to thrive in an environment directly geared to their needs. The principal emphasizes relationships and builds a school that engages all students in learning and meets their needs by taking the time to get to know them. The principal has a collegial coaching relationship with teachers, working to enhance their pedagogy through trusting relationships.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

ESSENTIAL COMPETENCIES FOR THIS ROLE



Natalie Woods

Associate Partner

Education Elements

Highlighted school: Representative example

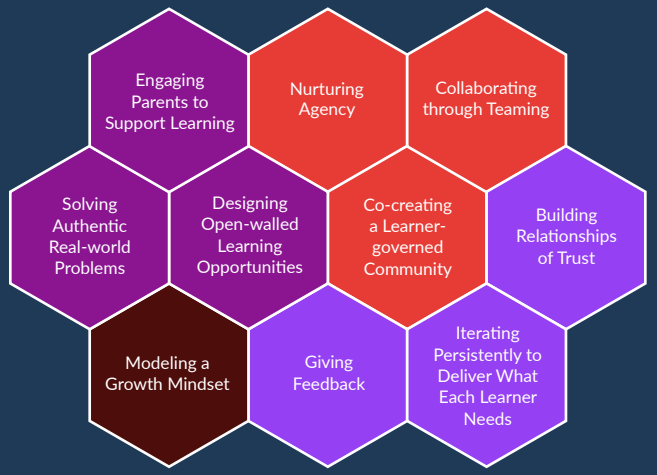
Highlighted school's beliefs include:

Adults and students collaborate together as problem-solvers to design learning experiences that meet their needs • We practice regular reflection and iteration toward improving engagement and achievement • We develop students and adults alike to be lifelong learners • Classrooms are accessible, relevant, and reflective of how students learn outside of school • We incorporate choice and agency into all instructional decisions • We ensure students receive support and instruction that they need, when they need it, and how they need it. This is accomplished through personalized learning, competency-based learning, culturally-responsive teaching, and project-based learning • We design with clear visions, roll-out plans, and strategies for sustaining support • Team-level change is key to building a foundation for changes that can spread across schools and the district, and be sustainable into the future.

Highlighted role: Principal

A principal is an innovative, responsive leader who has the tools and mindset to develop a school where teacher-led innovation is fostered, empowered, and celebrated. A principal strives to create an environment where it's safe to try innovative practices. This role creates and sustains teams to have clear habits of collaboration with joint ownership and agency over practices. A principal creates a space where students are co-owners of their learning, and teachers feel safe to make their own decisions. The strengths, needs, and interests of students are at the center of all decisions.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL



ESSENTIAL COMPETENCIES FOR THIS ROLE

Nicholas Mendoza

Director, Educator Leadership and Engagement

Teach For America Houston

Highlighted school: Alchemy Academy

Highlighted school's beliefs include:

We all have artistic gifts, and honing and sharing them ultimately creates a more compassionate world • Our experiences, failures, and successes give us power • We learn to love ourselves and our world, learn for wisdom, and learn toward the liberation of ourselves and our world • Students explore ways in which their identities make them subject to privilege or oppression in our country and world • Students position themselves as both teachers and learners as they assist adults in creating learning practices that reflect and sustain their cultural ways of being, as well as their own iteration of the cultural spaces they inhabit • Adults at school position themselves as learners as they critique and destroy their own biases and understandings of liberatory structures while modeling how to approach learning through questioning and creativity.

Highlighted role: Face-to-face teacher

Face-to-face teachers are ethnographers and learners who minimize their footprint in the classroom, and alter the curriculum to meet the interests of their learners. They require an understanding of the scope of the curriculum as well as child psychology, learning science, and grade-level standards and skills. Teachers garner a deep understanding of the cultural and ethnic backgrounds of their students, including ways in which these cultures have been historically oppressed and/or privileged, as well as the cultural norms of the students they serve.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

ESSENTIAL COMPETENCIES FOR THIS ROLE

Sami Forster

Director of Professional Learning and Support, Wisconsin eSchool Network

Wisconsin Digital Learning Collaborative

Highlighted school: Representative example

Highlighted school's beliefs include:

Include quality planning strategies • Harness connections to implementation solutions • Utilize peer-led learning opportunities that empower leaders and staff to meet a wide array of learner needs for choice, flexibility, and instructional support • Work with local, state, and national experts to elevate quality • Successfully and equitably implement high-quality online and blended learning.

Highlighted role: Online instructor

An online instructor typically wears many different hats, including course facilitator, student guide and supporter, and learning designer. The facilitation of existing or provided digital content, student support both for intervention and extension, and providing actionable feedback to students are the primary roles of an online instructor. The online instructor also plays the role of learning designer to tailor and modify existing digital content to design an engaging and productive experience for each learner. Incorporating items with a human presence, and inserting ways to create community in the online environment, can encourage connection.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

ESSENTIAL COMPETENCIES FOR THIS ROLE

Stephen Pham

Director of Organizational Learning

Jeremy Jones

Partner

The Learning Accelerator (TLA)

Highlighted resource: TLA's Blended Learning Framework

Highlighted framework's beliefs include:

The strategic integration of in-person learning with technology enables real-time data use, personalized instruction, and mastery-based progression • Teachers leverage face-to-face instruction (direct instruction, peer-to-peer, small and whole group, and individual learning) and various technologies (teacher- and student-facing) to design their model, schedules, and space. This integration enables real-time data use, supporting educators in continuously monitoring progress to inform and tailor instruction • Teachers are able to personalize instruction based on student strengths, needs, interests, and goals, all in service of a mastery-based progression that allows students to advance to new content.

Highlighted role: School leaders

School leaders are agents of change. They manage the time, resources, and climate of their organizations and have the ability to create innovative models of teaching and learning for large groups of students. They are a key part of ensuring positive change can happen effectively in a school setting. They also have the ability to craft their teams, first through new talent acquisition and then through follow-on coaching, support, and development. Having the ability to establish the school vision and manage toward that vision gives school leaders a unique opportunity to establish new models of teaching and learning.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL

ESSENTIAL COMPETENCIES FOR THIS ROLE

Virgel Hammonds

Chief Learning Officer

KnowledgeWorks

Highlighted school: Northern Cass School

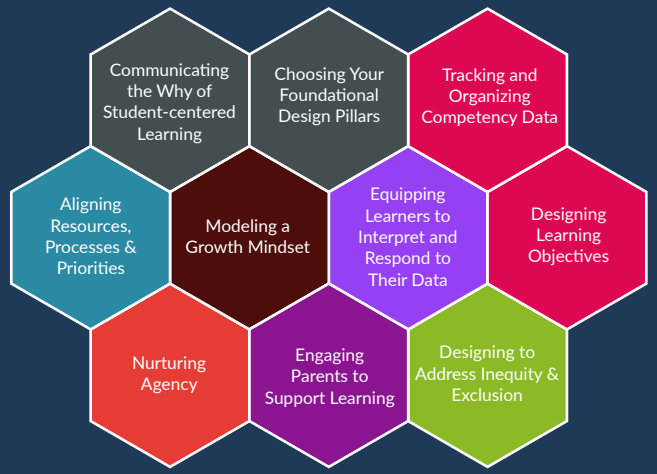
Highlighted school's beliefs include:

Every learner can change the world, therefore we must provide a world-class education • We are dedicated and passionate about relationships, teaching and learning, self-reflection, acknowledging greatness, and supporting the Northern Cass community • We are driven toward continuous improvement • At the fundamental level, we understand that "world-class" looks different for each learner and a one-size-fits-all education won't provide it. We have worked diligently in the last three years to reform and restructure what school looks like for our learners so we can provide them opportunities that make this place world-class for them as individuals • We know that all kids can learn and meet proficiency given the right time, tools, and guidance; it is our goal to create a personalized environment for each learner • We have identified a set of skills, called Choice Ready Skills, that we believe all learners need to be successful in life. These skills are learned through the experiences they have at Northern Cass, and academic content is a pathway to developing them.

Highlighted role: All roles

Each member of the learning community needs to embody the traits and skill sets that are part of the core beliefs. For systemic transformation to occur, these traits must be shared by all members. They are also crucial for the vibrancy and sustainability of the learning community.

TOP 10 COMPETENCIES FOR PROGRAM OVERALL



PART 4. RECOMMENDATIONS FOR SCHOOLS

Solutions for accessing the benefits of a modular world for professional development are emerging. Pioneers of student-centered education have begun to specify stacks of educator competencies that they need for their schools. Where does the field go from here?

The ability of micro-credentials to instill the competencies that leaders specified in Parts 2 and 3 depends on how well they can meet the three conditions that define success for any modular interface—specifiability, verifiability, and predictability. Whether micro-credentials meet those conditions will hinge in large part on the actions of organizations participating in the micro-credentials ecosystem. We, therefore, offer the following recommendations for guiding micro-credentials toward success.

For pioneering educators: Help build the ecosystem

The competencies we outlined in Part 2 are still in their fledgling stage of development. For micro-credentials based on these competencies to gain traction, they need student-centered educators and researchers to help flesh out the details.

Pioneers can engage in this work by agreeing to author student-centered micro-credentials in partnership with issuers like Digital Promise, BloomBoard, and NEA. Educators and researchers who author micro-credentials stand to benefit as the micro-credentials they develop help promote their brands and earn them author royalties.

For schools: Verify what you buy

If schools are not careful in what they demand when they pay for micro-credentials, they could unwittingly undermine the value of the micro-credential system.

One promise of micro-credentials is that they smooth the friction schools face when hiring and staffing for particular roles. When micro-credentials work as intended, schools can trust that, if an educator has earned a particular set of micro-credentials, she has what it takes to fulfill a particular role.

Historically, however, schools pay for professional development inputs, not outcomes. For example, they pay for a workshop presentation, not for a guarantee that teachers master the content of the workshop. They pay for continuing education credits that are earned by completing lecture hours and assignments, not by demonstrating mastery of particular teaching skills. If schools purchase micro-credentials with this same pay-per-service mindset, the micro-credential issuers will lack the incentive they need to continuously innovate and improve the efficacy of their competency-verification methods.

Thus, as schools work with micro-credential issuers, they need to scrutinize the strength of issuers' verification systems. For example, they should demand transparency about the rubrics and the evaluation systems issuers use, and, from time to time, consider hiring third-party evaluators to verify that their educators truly have the purported competencies.

For issuers: Design your micro-credentials for modularity

Issuers might be tempted to market their micro-credentials by featuring renowned authors and trending education topics, served up on slick software platforms. Such micro-credentials could draw short-term attention but are unlikely to ensure efficacy. Micro-credentials designed toward fleeting trends don't address the true strategic needs of administrators who want strong long-term results from their student-centered models.

The smarter move for issuers is to design their micro-credentials for modularity. In an integrated, non-modular world, administrators don't have an affordable, easy-to-set-up, customizable method for developing the personnel they need in order to achieve a full shift to student-centered teaching. A modular solution, however, would deliver these benefits.

Issuers can begin by being meticulous in writing micro-credentials that align to the precise specifications of school operators. If a principal needs a teacher who can meet one-on-one to give high-quality feedback to third-grade English Language Learners, the micro-credential must match that specification.

Working toward specifiability includes sorting out the subtle language difference in how different schools describe competencies. It also includes identifying when a competency looks different in one school environment versus another and building those context-specific nuances into the micro-credential descriptions.

The next priority for issuers is to design their evaluation system to optimize for reliable, predictable results. If the issuer awards a micro-credential for a specific competency, the teacher who earned it must indeed possess the competency, as described. A principal in the school district nearby should be able to hire that same teacher and predict with certainty that the competency transfers.

Building an effective system for verifying competencies may not be cheap or easy. It won't be enough just to create a first version of an evaluation rubric and stop there. The methods for measuring competency need to be tested and refined until predictability is demonstrated.

For state and district leaders and policymakers: Compensate educators

For the micro-credential ecosystem to thrive, micro-credential issuers must be able to earn reasonable revenue for the product they provide. Without an adequate revenue stream, issuers will be unable to develop new micro-credentials, improve existing micro-credentials, or ensure a robust system for verifying educator competencies. In short, supply can only grow—and improve—where there is commensurate demand.

If demand for micro-credentials comes only from teachers, the micro-credentials ecosystem will be sparse and shoddy. Teachers value professional learning, but most of the professional learning they pursue on their own comes from low-cost sources such as books, open online courses, colleagues, and professional learning communities. More rigorous professional development is often costly, and consequently not an out-of-pocket expense most teachers can afford.[15]

To create a viable market, state and district policymakers need to incentivize and subsidize teachers' demand for micro-credentials. For example, state and district leaders should purchase bulk licenses to afford teachers the opportunity to earn micro-credentials without paying for them out-of-pocket. Additionally, districts could award teachers one-time bonuses for each micro-credential they earn or allow them to count micro-credentials for advancement in the district's salary schedule. Likewise, states and districts should allow teachers to count micro-credentials as forms of continuing education for relicensure and leadership opportunities.[16]

To create a viable market, state and district policymakers need to incentivize and subsidize teachers' demand for micro-credentials.

CONCLUSION

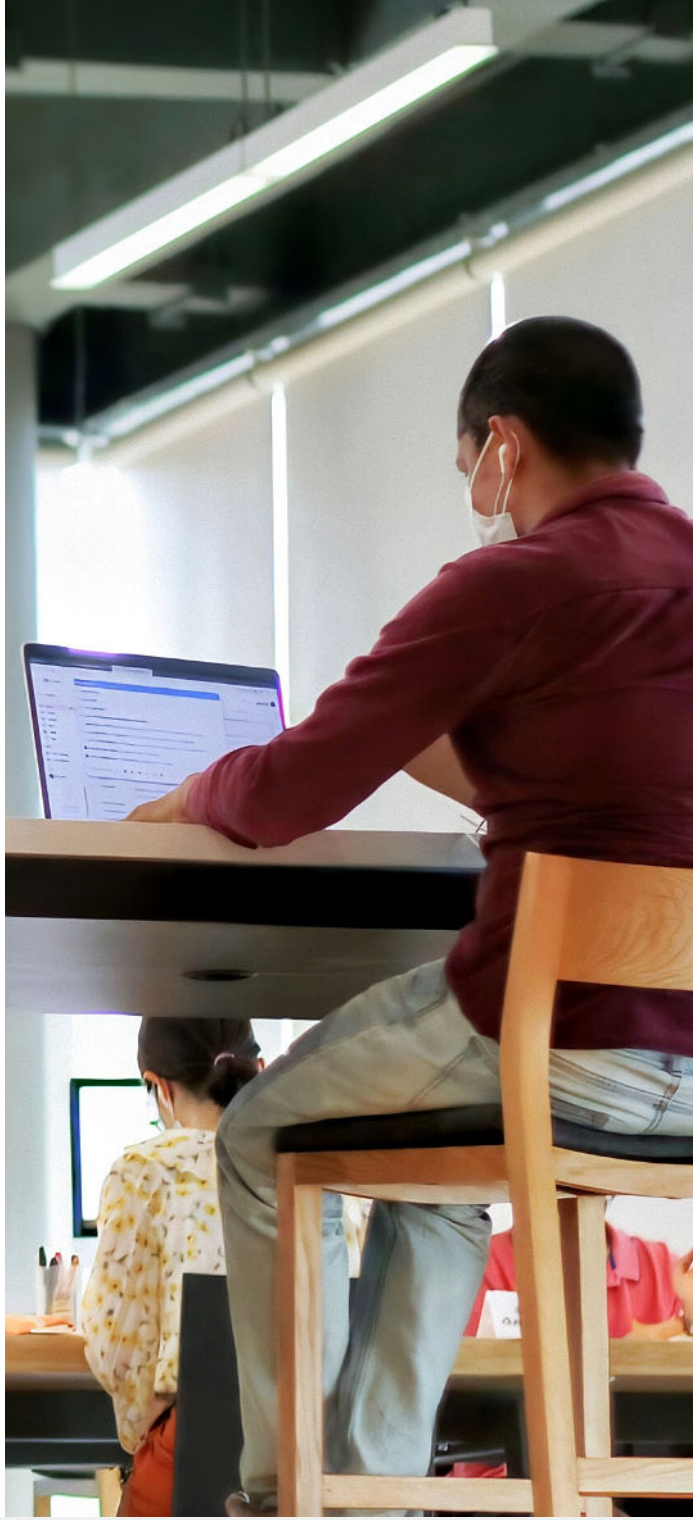
As educators, schools, and leaders work to implement and scale student-centered learning, micro-credentials are poised to bring the benefits of modular architecture to PD for student-centered teaching.

Working toward a more modular system for professional advancement is a worthwhile goal. Existing quasi-modular options, such as workshops and degree programs, yield unreliable results because of gaps with specifiability, verifiability, and predictability. Existing integrated options, such as internally designed PD and model provider PD, are difficult, time-consuming, and expensive to develop on the one hand, or require conformity to an external provider's model on the other.

A truly modular system, however, provides reliable certification of educator competencies, and adapts to a variety of models in an affordable, easy-to-set-up, and customizable way.

Micro-credentials could unlock that modular potential, if structured and managed strategically. The key is to shape them with specifiability, verifiability, and predictability as their hallmark attributes. Then, the education system must reward educators who attain them with all of the accordant benefits that would be theirs if instead they had taken a more traditional route to professional advancement.

One step toward creating the preconditions for modularity is to specify the competencies that student-centered educators need. We hope that the micro-credentials identified in this report offer a starting point for specifying a starter list. Much work remains, but a path is emerging for equipping school leaders and teachers with the knowledge, skills, and dispositions that will enable them to give each student a student-centered education.



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4. Pulham, "Is Higher Education Teaching."

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9. "Model Providers: New Pathways to Innovation," New Schools Venture Fund, 2018, http://www.newschools.org/wp-content/uploads/2019/06/Model-Providers-Pathways-to-Innovation.pdf.

10. Acton Academy is a micro-school network of hundreds of owner-entrepreneurs. Although it offers a full package of tools as an integrated bundle, individual owners have wide latitude for what and how they implement.

11. Tracy Crow, "Micro-credentials for Impact: Holding Professional Learning to High Standards," Learning Forward and Digital Promise, 2017, https://learningforward.org/wp-content/uploads/2017/08/micro-credentials-for-impact.pdf.

12. Digital Promise and BloomBoard joint press release, "BloomBoard and Digital Promise Launch Micro-credential Website to Support Competency-Based Learning for Teachers," November 10, 2015, https://digitalpromise.org/wp-content/uploads/2016/04/BloomBoard-Digital-Promise-Press-Release.pdf.

13. See, for example, http://cgps.nea.org/micro-credentials/.

14. The information contained in the profiles was submitted by the respective leaders and schools.

15. Matthew A. Kraft and David Blazar, "Taking Teacher Coaching to Scale," *Education Next* 18, no. 4 (Fall 2018), https://www.educationnext.org/taking-teacher-coaching-to-scale-can-personalized-training-become-standard-practice/; David Knight, "Assessing the Cost of Instructional Coaching," *Journal of Education Finance* 38 (Summer 2012): 52–80, 10.1353/jef.2012.0010.

16. For additional implementation principles, see "Design, Assessment, and Implementation Principles for Educator Micro-credentials," Council of Chief State School Officers (CCSSO), https://ccsso.org/sites/default/files/2020-01/Micro-credentials%20-%20Design%20Principles_FINAL_1.pdf.

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About the Institute

The Clayton Christensen Institute for Disruptive Innovation is a nonprofit, nonpartisan think tank dedicated to improving the world through Disruptive Innovation. Founded on the theories of Harvard professor Clayton M. Christensen, the Institute offers a unique framework for understanding many of society's most pressing problems. Its mission is ambitious but clear: work to shape and elevate the conversation surrounding these issues through rigorous research and public outreach.

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