Architecting Curriculum: New Models

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Elizabeth Adkins, Director of Instructional Design
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DRIVERS OF CHANGE
Access
- Attracting new student populations
- College readiness

Quality
- Tying learning to employability
- Improving quality of learning
- Improving retention & graduation rates

Cost
- Lowering cost of learning
- Lowering the cost of instruction
- Increasing revenue
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**New Models**

**Personalized or Adaptive Learning**
Pedagogy, curriculum, and environments are personalized; learning pathways are tailored to individual needs.

**Competency-based Education**
Students demonstrate mastery of competencies rather than acceptable performance (grade).

**Alternative Credentials**
Credentials that are not awarded based on credit hours (e.g. stackable credentials, prior learning assessments, boot camps).

**Analytic Capabilities**
descriptive, inferential, and predictive analytics underpin each of these approaches.

**Change Leadership**
the driving forces, visions and processes that propel large-scale transformation.
Drivers and Models

Drivers:
- Attracting New Student Populations
- Improving Retention Rates
- Tying Learning to Employability
- Affordability
- Improving Quality of Delivery
- Scale

Models:
- Competency Based Education
- Personalized/Adaptive Learning
- Alternative Credentials
Demonstrate a pre-defined level of achievement for a competency (a complex set of behaviors).

Often self-paced.
Model: Competency-based Education

- Attracting new student populations
- Employability
Model: Adaptive Learning

- If this then that.
- Typically technology-driven personalized learning.
Adaptive Learning Model:
Adaptive Learning

- Lower cost of learning
- Improved quality of learning
Model: Alternative Credentials

- Evaluation of incoming population.
- Explicitly tying credentials to employability.
Alternative Credentials

Model:
Alternative Credentials

- Improved quality of learning
- New student populations
- Lower cost of learning
PERSONALIZED LEARNING
Education paradigm

Learning paradigm
Social Learning

Deeper Learning

Effective Practice

Self-Regulated Learning

Zone of Proximal Development

Learner Outcomes

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From digital desert

- Numeric data captured in rare testing events using simplified scoring

To digital ocean

- All digital experience naturally generates data
- Logs of movement through a system
- Text of your answers in homework
- Logs of choices made in a game
- The text in a book or on this slide
- “Big data is just a lot of little data”
EDUCATORS

We can make **better decisions** to help learners succeed.

We can **intervene early** to help learners get back on track.

Adaptive learning helps us build a **personalized learning experience for each learner**.

LEARNERS

I can **focus** on the areas where I need to make progress.

I get **help** when I need it most.

My path to mastery **is tailored just for me**.
Common digital learning activities

- Midterms & Finals
- Unit Tests
- Certification Exams

- Objective Setting
- Pre-assessment
- Diagnostics for Placement

- Flashcards
- Learning Hits
- Test Prep

- Content Acquisition Tools
- In-class Lectures
- Discussions
- Video

- Practice
- Simulations
- Language learning
- Writing

Summative assessment
Setting expectations
Review / study
Reading / instruction
Formative assessment (procedural application)
Formative assessment (conceptual understanding)

Common Learning Activities
Common digital learning activities

- Summative assessment
- Setting expectations
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- Formative assessment (conceptual understanding)

Common Learning Activities

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- Cognitive Tutoring
- Personalized Study Guide
- Adaptive Flashcards & Learning Hits
- Adaptive Practice
- Computer Adaptive Test
- Learning Analytics
- Predictive Analytics
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- Video
Course: 1070722  # Students: 58  # Objectives: 197  Ave. Interactions: 1129

Course: 1159267  # Students: 38  # Objectives: 47  Ave. Interactions: 400

Course: 1142353  # Students: 57  # Objectives: 130  Ave. Interactions: 1206

Course: 1185769  # Students: 28  # Objectives: 248  Ave. Interactions: 2508
Descriptive analytics
Inferential analytics
Predictive analytics
Objective-level interventions
Step-level interventions
Personalized pathways
Number of questions answered

Probability of mastery

- static assignments
- adaptive assignments
- mastery threshold
- Demographics
  - Preferences
  - Composite knowledge/skills
  - Progression in course
  - Interaction in system
  - Interests
  - Social, cognitive, conative, affective attributes
  - Levels of engagement

- Didactic
  - Constructivist
  - Experiential
  - Collaborative/Interactive
  - Competitive
  - Independent

- Pacing differences
  - Recommendations of content
  - Redundant content
    - Media types
    - Bloom's levels
    - Prerequisite skillbuilding
  - Choice for learner
  - Faculty intervention

- Representations:
  - Ontology
  - Taxonomy
  - Concept maps
- Sources:
  - Textbooks
  - Course materials
  - Media resources
  - The world at large
Learning Activity

Personalized Learning Activities

Adaptive, Algorithmic Decisioning

Data
Learning products that generate outsized learner outcomes

**Recommendation & intervention engine**
Models that serve up instructional material, feedback, and/or next item (just-enough, just-in-time, just for me) based on learner knowledge, skills, attributes or behaviors

**Smart, structured content**
Tagged instructional material & assessment, structure learning objectives, rich metadata

**Content graph**
Map of relationships among learning content, assessment items, learning objectives, difficulty levels and concepts

**Data store**
A central home for all user interaction data from our digital learning products

**Learner profile**
Data portrait of learner attributes (e.g. knowledge, behaviors, skills)

Learning design principles & applied data science foundation

*Infrastructure required*
Social Learning
Deeper Learning
Effective Practice
Self-Regulated Learning
Zone of Proximal Development
Learner Outcomes
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Competency Based Education (CBE)
Institution Paradigm

Learning Paradigm

Mastery Paradigm

Learner Paradigm

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Defining Mastery is the Core of CBE

• Defining Competencies and Competency Framework
• Defining and Validating Measures to Assess Mastery
CBE - Four Key Strategic Decisions

• **Program Management**
  What is the most appropriate organizational model for our CBE program's roles and responsibilities?

• **Program Design Approach**
  What approach will we take for how students complete the program?

• **Accreditation and Financial Aid**
  Are we going to fit within existing Financial Aid rules or seek exceptions?

• **Program Strategy**
  How do we select or validate program choices for CBE development?
Program Design Model

Seat-time only model
Students demonstrate mastery of competencies through assessments, but learning is group-paced in a traditional classroom or lab.

Hybrid model
Students can complete program requirements through a mix of traditional and online courses and exams with credits earned through CBE assessments.

Completely self-paced models
Programs are offered in a CBE format but linked to traditional credit hours and semesters.

Examples:
- George Mason University
- Excelsior
- Western Governors University
- Capella
- SNHU College for America

Relies solely on direct assessment of competencies and not credit hours earned or classes completed.
CBE Playbook
Maintaining coordination across 7 key workstreams

Summary
Our framework for the CBE Playbook – it provides the 7 key work streams necessary for CBE strategy.

Note on use
The CBE work streams are not sequential. Rather, they run in parallel with specific activities occurring within in each stream throughout the program development phase.
# Key functions across workstreams

## Managing Implementation

### Org
- Executive leadership
- Financial modeling
- External relations
- Accreditation & approvals
- Change management

### Dev
- Faculty Development
- Curriculum D&D
- Delivery Model D&D
- Assessment D&D

### Success
- Orientation & Readiness
- Retention strategy
- Service Processes
- PLA & Degree pathways

### Tech
- Learning infrastructure
- Reg & Assessment mgmt
- Data & learning analytics
- Retention & support solutions

### Mgmt
- Resource planning
- Staffing
- Vendor relations
- Partnerships
- Tracking & reporting

### EM
- Marketing strategy
- Lead gen
- Funnel management
- Registration & advising

**Academic Partner Summit**

Amelia Island, Florida  |  2016
Three Program Models

Western Governors University
- 100% credit hour equivalency
- 1 competency = 1 credit hour
- Semester terms
- Completion = "B" grade for financial aid purposes
- All financial aid follows federal guidelines
- Regionally accredited for CBE

Lipscomb University
- 50% CBE direct assessment
- 50% traditional credit hour
- Competencies map to credit hours
- Semester terms
- Regionally accredited and approved for CBE
- Seeking federal direct assessment approval

SNHU College for America
- 100% direct assessment
- Competencies roughly map to credit hours—2:1
- 6-month rolling terms
- Regionally accredited and approved for CBE
- Federal DOE approval for direct assessment exemption
CBE Program Design Elements

How strongly do CBE programs agree the following design elements are needed for a robust and healthy program?

- **Clear, Cross-Cutting and Specialized Competencies**: 99%
- **Measurable & Meaningful Assessments**: 98%
- **Proficient & Prepared Graduates**: 97%
- **Learner Centered**: 95%
- **Embedded Process for Continuous Improvement**: 84%
- **Coherent, Competency-Driven Program & Curriculum Design**: 76%
- **Engaged Faculty & External Partners**: 76%
- **Enabling & Aligned Business Processes & Systems**: 73%
- **New or Adjusted Financial Models**: 70%
- **Flexible Staffing Roles & Structures**: 67%
Case Study: Student Support Model College for America

Academic plan
Self directed student progression through competencies

Coach
Set and monitor goals

Online networks
Peer support

Learning Partner
Support and encourage

Mentor
Employer / community member

Source: Adapted from EDUCAUSE
Next Gen Grant Recipient Profile
# Program Management

<table>
<thead>
<tr>
<th>Departmental Management</th>
<th>Coordinating Management Unit</th>
<th>Separate Business &amp; Academic Unit</th>
<th>Cross-Institutional</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic units drive program management and coordinate with traditional campus offices.</td>
<td>A central unit manages program delivery and acts as coordinating agency with academic, service, and business units.</td>
<td>A separate business manages program development, marketing, delivery, and other key functions with academic oversight from faculty.</td>
<td>The entire institution is organized around adult learning and/or CBE.</td>
</tr>
</tbody>
</table>

**Examples:**
- Westminster College
- NAU Personalized Learning
- Lipscomb University
- UT Texas ITL
- University of Wisconsin FlexOption
- SNHU College for America
- Western Governors University
- Excelsior
- Brandman University
- Rio Salado Community College
Change Leadership

Change Management
• Getting stakeholders to buy into change
• Ensuring the process stays under control
• Minimizing risk
• Keeping the initiative on budget

Change Leadership
• Articulates a vision for the future
• Mobilizes and coordinates resources necessary for the change
• Creates engines for accelerating innovation
Change Leadership Strategies

• Involve key stakeholders as early as possible
• Create faculty innovation models
• Clearly articulate goals and outcomes -WHY CBE?
• Empower key stakeholders through distributed problem-solving and iterative design
• Engage employers and other external stakeholders in meaningful ways
• Understand key constraints and limits
  – Which can you overcome and which do you need to live with?
Program Outcomes and Evaluation

Embedded Process For Continuous Improvement
- Articulated and transparent program goals and measures of program quality serve as performance benchmarks
- Ongoing attention to evaluation and continuous improvement built into program design and delivery of curriculum
- Safe and structured spaces for innovation created and supported at multiple levels

Measureable and Meaningful Assessments
- Assessments measure learning and transfer of learning into multiple and novel contexts
- Assessments are frequent, informal and formal, formative and summative
- Assessments are rigorous with clear and valid measures
- Assessments provide real-time feedback for reflection and refinement
Alternative Credentials
Degree Paradigm

Skills Paradigm

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What are alternative credentials?

- For-credit certificates
- Non-credit certificates
- Industry certifications
- Badges
- Validations
- Endorsements
- Exemptions
- Credit articulation

“Alternative credentials are typically offered as awards for the completion of standalone courses, entirely face-to-face, online, or in a blended format, or seminars, events, and formal or informal gatherings. They are most often, though not always, professionally focused and intended to teach very specific subjects or skill sets (i.e., they are not designed for broad exposure to ideas or skills).”

Eduventures, 2015
Alternative credential models and collaborations are still emerging

<table>
<thead>
<tr>
<th>SHNU / Flatiron</th>
<th>GA / Lynn University</th>
<th>Georgia Tech / Udacity</th>
<th>MIT / edX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expansion of SNHU's online learning program</td>
<td>Earn 15 credits by completing a 16-week academic program in technology design</td>
<td>Georgia Tech, Udacity, and AT&amp;T offer an online Master's degree in Computer Science</td>
<td>Receive credit for a semester’s worth of courses online via edX</td>
</tr>
<tr>
<td>Coding bootcamp at SNHU's Nashua campus</td>
<td>Offered at distant campus of General Assembly</td>
<td>Full degree through Georgia Tech or take individual classes with Udacity</td>
<td>Then complete an on ground MIT master’s degree</td>
</tr>
<tr>
<td>3+1 program</td>
<td></td>
<td>“MicroMaster's”</td>
<td></td>
</tr>
</tbody>
</table>
Getting to an alternative credential strategy – why do institutions explore alternative credentials?

- Financial drivers: Generate new revenue, increase enrollments, increase degree completion, decrease delivery costs
- Leadership supports: Clear employability directives, ties to institutional mission, ties to strategic objectives / plan
- Market / differentiation strategy: Improve quality of graduates, improve quality of programs, increase competitiveness (both within HE and against new entrants)
- Organizational foundations: Existence of supporting infrastructure, employability focused program structures, etc.
- Regional employment needs: Greater clarity on definition of needs, sustainable ties to employers
- Public policy context: Attention from state / other gov authorities
Examples: 3 Alternative Credential Models

1. **IT boot camps**: Intensive, short duration certification programs focused on in demand skills from employers. For example, an IT certificate in mobile applications.

2. **CBE self-paced certificates**: Institution offers self-paced certificate programs within a competency framework. For example, an institution’s workforce certificate programs could help a large HC provider retrain nurses in home health care in a flexible format.

3. **Micro credentials**: Branded, stackable “credentials” validated by employers in high demand skills. For example, a trade association develops an industry specific certification and needs delivery, content, and technology partners.
## Potential Outcomes of Alt Credit Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Potential outcomes</th>
</tr>
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</table>
| 1. IT boot camps (certificates) | • Close gap between traditional curriculum and workforce needs  
                                 • Could include new certification and/or badge/series of badges  
                                 • Drive new enrollments                                    |
| 2. CBE (self paced certificates) | • Assessment driven CBE to enhance credibility and quality  
                                • Employer involvement in curriculum, workforce alignment  
                                • Meeting scaled needs of (large) employers  
                                • Affordable, greater speed to completion                  |
| 3. Micro credentials           | • Develop or redesign curriculum into modular framework  
                                 • Flexible and fast path to programs development (reuse, cross program applicability  
                                 • Granular pathways to validated skill development         |
Lifecycle framework for alt cred strategy

Pre-enrollment
- Bridge programs
- Alternative pathways

Post-enrollment
- Bootcamps
- Badges / micro creds

First Year
- Program Progress
- Capstone experiences

Completion
- Employment
- Career advancement
Functional framework for evaluating alt cred strategy

**Institutional starting point**

- **Institutional entry points**
  - Degree programs
  - Workforce programs
  - Dev Ed

- **Populations**
  - Traditional
  - Adult returners
  - Non-degree
  - CC transfers

**Strategic options**

- Workforce alignment
- Organization for employment
- Outside the classroom
- Assessment, transcript, credential
- Instruction / program portfolio

**Institutional focus**

- College readiness
- Degree completion
- Career-path dev
- Employer relations

**Outcomes**

**Employer outcomes**
- Abilities
- Characteristics
- Licensures
- Etc.

**Institutional outcomes**
- Student outcomes / metrics
- Revenue / enrollments
- Etc.

**Student / employee outcomes**
- Employment / earnings
- Career progression
- Etc.
Managing the implementation: Accelerators / Inhibitors

**Accelerators**
- Clear articulation of contribution to program goals
- Alignment to employer demand. Ex: Big Data in Public Administration
- Alignment to the “development journey”
- Optional or outside of foundational curriculum
- Multiple target markets
- Integration into larger employability strategy

**Inhibitors**
- Partnership concerns
- Academic integration challenges—primarily as part of foundational curriculum
- Business integration challenges
- Faculty concerns
- Limited integrated employability strategy
- ...
Outcomes: key questions to ask to ensure alignment between alt cred models and outcomes

- Connection to learner developmental stage?
- Connection to demonstrated employer needs?
- Key drivers for you to consider this? Revenue generating or program enhancement? Etc.?
- Where does leadership live within the organization?
- What is the degree of customization from standard models you would like or need to see?
- If working with a partner, what are the respective role?
- What is the potential market size, scope, and longevity for this program?

✓ Improved alignment to employer needs
✓ Support retention
✓ Foster innovation
✓ Improve access and affordability
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Thank you!