AURORA INSTITUTE

WEBINAR

Supporting the Learner throughout their Competency-Based Journey: Examining Tech Standards

November 17, 2020

Welcome

- **Introduce yourselves in the chat box.**
  - Share who you are, where you are from, and one hope you have for this school year.
- **Ask and answer questions.**
  - Use the chat function to pose questions of our panelists. Attendees are also encouraged to respond.
- **Share your learning.**
  - Tell your colleagues what you are learning. Use #Aurora2020 on Twitter and mention @Aurora_Inst.
- **We are recording and archiving the webinar.**
  - The slides and video will be available on **aurora-institute.org**.

Supporting the Learner Throughout their Competency-Based Journey

Aurora Institute

17 November 2020

Michael Jay, Jeanne Kitchens, Brandt Redd

MATCH MAKER
MATCHMAKER EDUCATION LABS

Credential Engine™

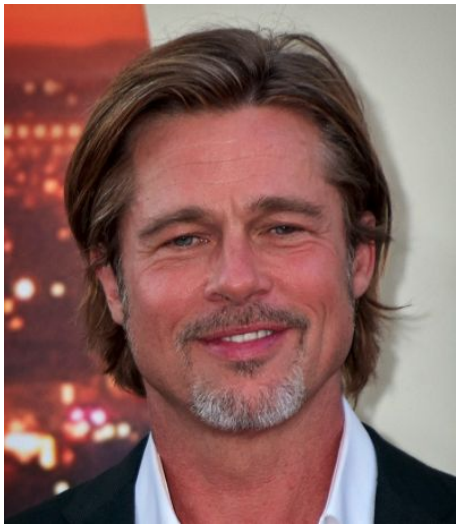
Outline

- **Competency Frameworks and Competency-Based Learning**
  - Michael Jay, CTO, MatchMaker Education Labs, PBC
- **Credentials and Interoperable Learner Records**
  - Jeanne Kitchens, Chief Technology Services Officer, Credential Engine
- **Data Standards and Interoperability**
  - Brandt Redd, CTO, Matchmaker Education Labs, PBC
- **Questions and Answers**

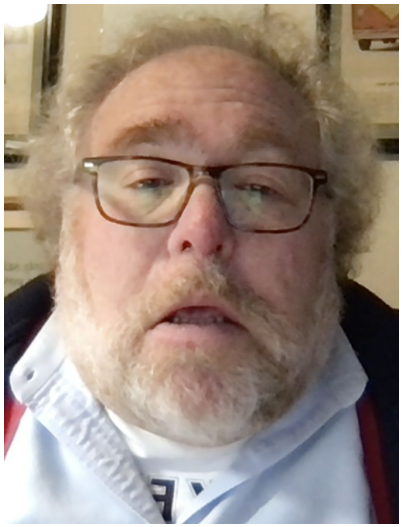
Competency Frameworks and Competency-Based Learning

Michael Jay

Before the pandemic



Now



It was so much easier when...

Evolution of guiding documents...

Educator

↳ Textbook

↳ Curriculum

↳ Frameworks

↳ Standards

↳ Competencies

Competency vs. Standard

Standards describe what learners should know and be able to do in relation to an established criteria.

Competencies describe how students apply and transfer their learning to new contexts and situations.

Std: Be able to accurately read an analog thermometer

Std: Be able to calculate humidity using wet bulb & dry bulb thermometers

Comp: Collect data using instruments to describe atmospheric conditions and predict weather

The good stuff we got from NCLB

From Curriculum Standards to Technical Standards:

Data Pipes

- Parsing of statements
  - Drive to reference-ability
    - Goal of interoperability

The catch… measurement

What does it mean to have achieved a competency?

- Competencies are comprised of multiple skills.
- Skills are almost always be easier to measure.

Competencies lend themselves to:

- hybrid assessment
- personal artifacts of understanding
- multiple contexts and applications of knowledge

Ownership and context

Communities define themselves by their shared beliefs and priorities

Learning communities do the same.

Example: Common Core

- Conceptually good… missed social components
- 85% common with 15% local
- Constructivist approach - Students & Educators

Utah's Vision (Todd Call, 2020 SETDA Leadership Symposium)

Utah's Portrait of a Graduate identifies the **ideal characteristics** of a Utah graduate after going through the K-12 system. These are **aspirations** not necessarily meant to be quantified and measured. These characteristics **begin at home** and are **cultivated in educational settings**.

Mastery

Autonomy

Purpose

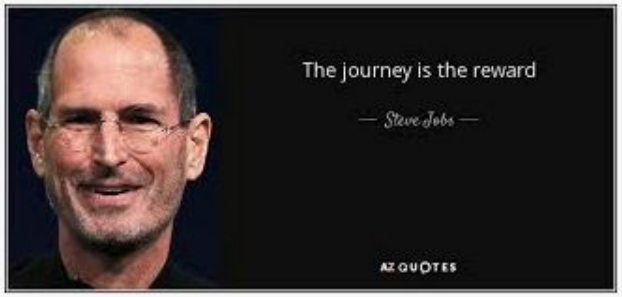
A Modern Definition of Truth

The journey is the reward | e...
zerodean.com

The journey is the reward | Journey ...
pinterest.com

The journey is the reward | J...
pinterest.com

Chinese Proverb - The journey is the ...
quotesnsayings.net



Steve Jobs quote: The journey is the reward
azquotes.com

The journey is the reward." - Steve Jobs
startupquotes.startupvitamins.com

The journey is the reward | Rockebah C ...
rockebahcstewart.com

the journey is the reward – Will Rosen...
willrosenberg.com

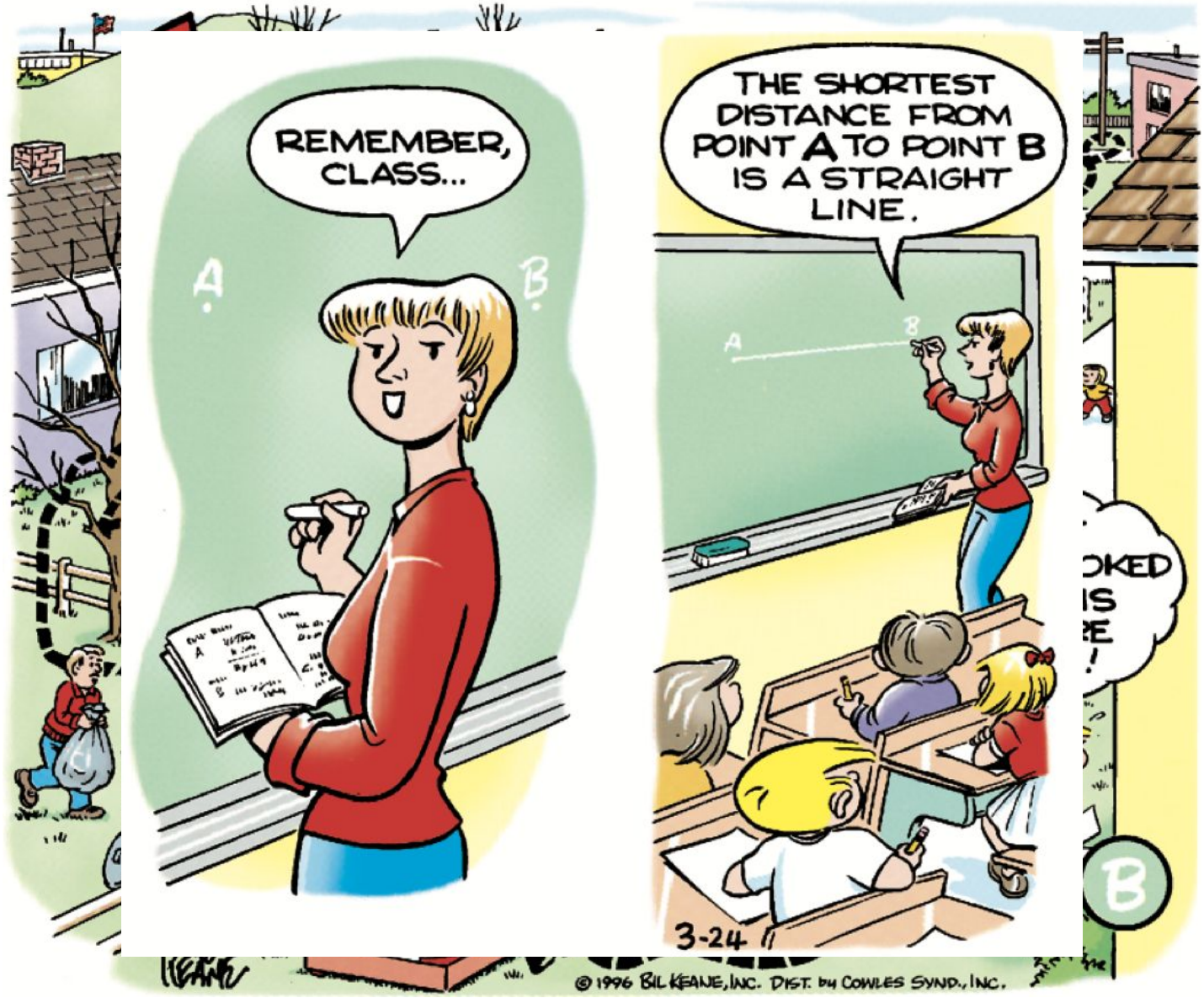
Dale Dauten Quote: "One path is greed ...
quotefancy.com

3 Reasons Why 'The Journey Is the Reward'
entrepreneur.com

The journey is the rewa...
picturequotes.com

THE FAMILY CIRCUS®

By Bil Keane



De-Babelization

While we support localization, we also need to map

Do what I mean, not what I say!

- Have you *read* ‘the’ standards or competencies?
- Meant to be implementable but they are still politically and socially constructed.
- We need ways to mediate between competencies

THE TOWER OF BABEL, PIETER BRUEGEL, 1563

MatchMaker Education Labs

We provide technologies and tools that match:

- Competencies to competencies
- Competencies to standards
- Competencies to learning resources
- Competencies to curriculum
- Competencies to skills
- … and much more!

We liberate learning.

Credentials and Interoperable Learner Records

Jeanne Kitchens, Credential Engine CTSO

It can be so much easier ...

About Credential Engine

Our Mission: Credential Engine is a non-profit whose mission is to create credential transparency, reveal the credential marketplace, increase credential literacy, and empower everyone to make more informed decisions about credentials and their value.

How we accomplish our mission:

- Building common infrastructure and language
- Collaboration
- Empowerment

Credential Engine™

Credential Engine Technologies

Community – A wide range of stakeholders provide and receive technical assistance and other services to both publish to the Registry and consume the data it houses. *Credentialing bodies, developers, and other users have access to resources such as do-it-yourself guides, best practices, and technical support.*

Credential Transparency Description Language (CTDL) – Common language that describes key features of credentials, credentialing organizations, competency frameworks, quality assurance bodies, and more.

Common descriptors allow for better comparison between credentials.

Publishing – After creating a user account, organizations use the API or any of the Publishing System tools to convert information to CTDL and publish to the Registry

Organizations have a suite of options to add information to the Credential Registry.

Credential Registry – More than a database, the Registry collects and connects credential data described with CTDL and supports an open applications marketplace

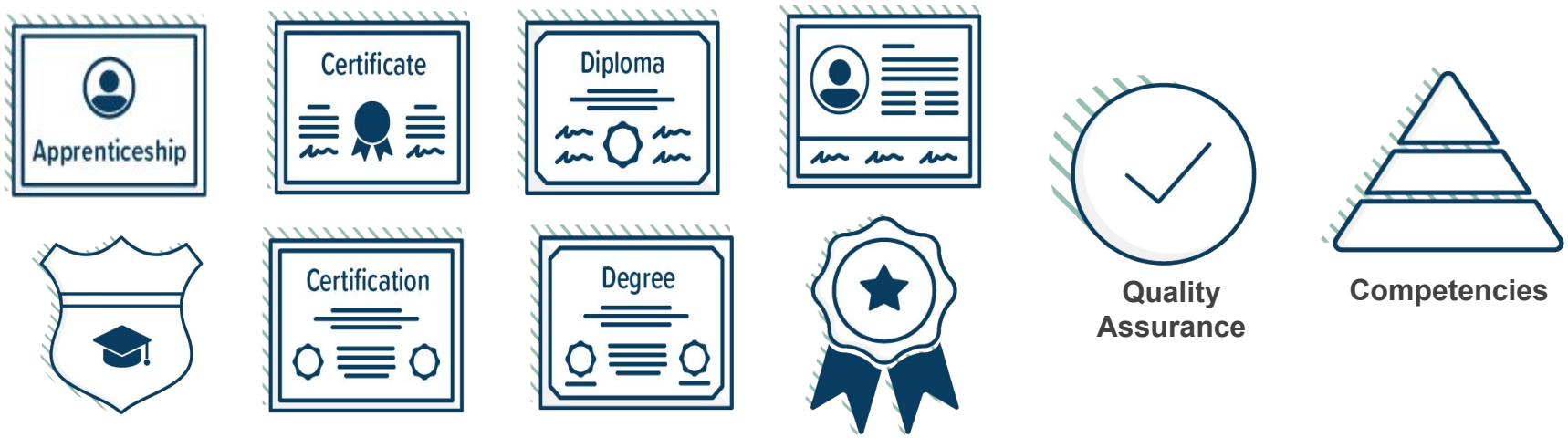
Developers can create specialized applications to utilize Registry data for different types of audiences, such as employers, veterans, and learners.

CREDENTIAL FINDER

Credential Finder – A basic app to view and explore the information stored in the Registry.

The public can use the Finder to see all information published to the Credential Registry.

The Education and Workforce Marketplace is Complex

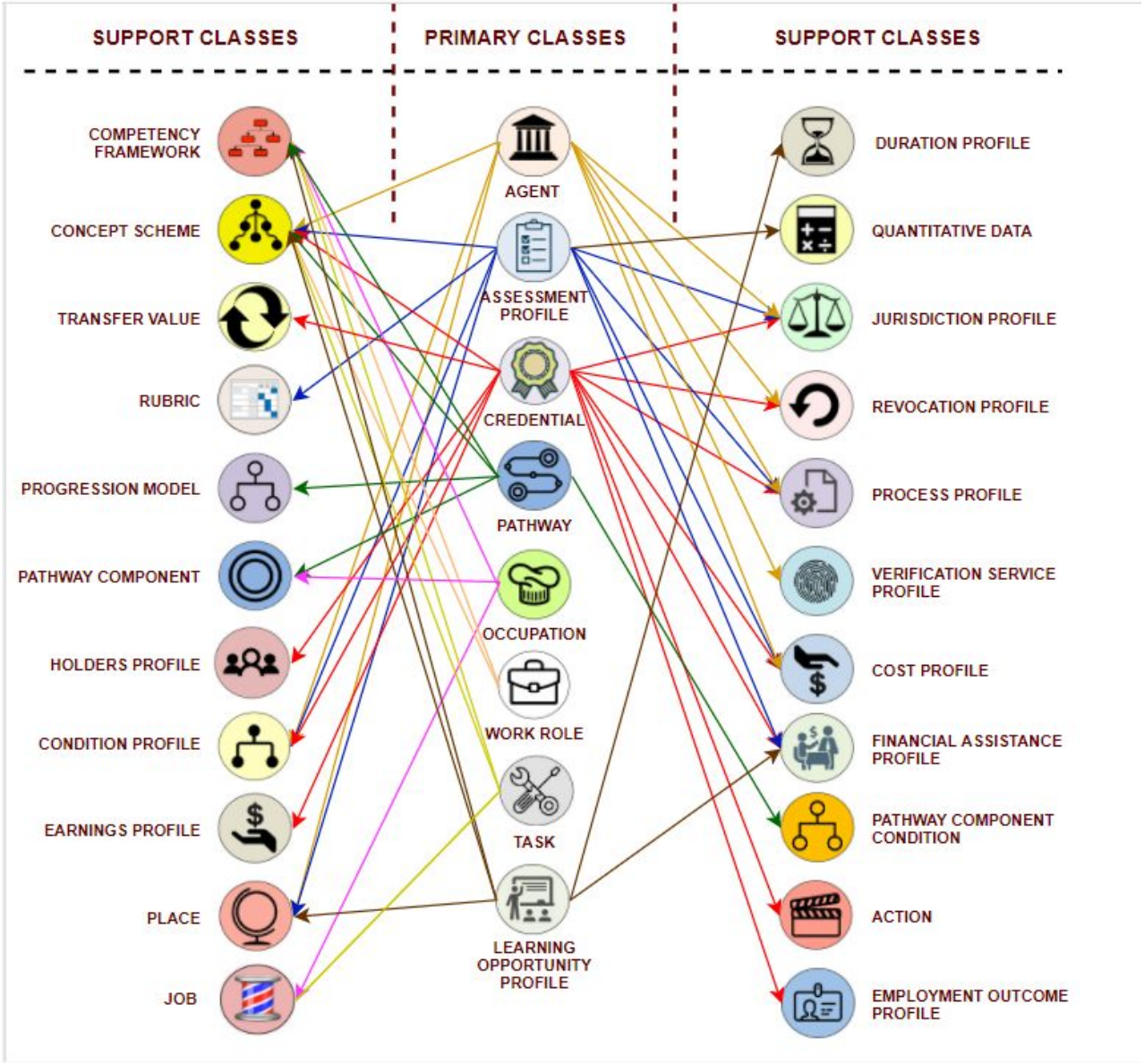


- 738,000+ credentials offered in the U.S. across different types of credentials and providers
- Educators, policymakers, employers, and the general public struggle to evaluate the meaning of credentials and competencies, including:
  - learning outcomes they represent
  - quality processes
  - connections to other opportunities whether additional credentials or jobs

Credential Transparency Description Language (CTDL)

A common language for transparency and comparability of credential and competency information.

https://credreg.net



Credential Registry

Based on CTDL, uses linked open data to provide credential and competency data. CTIDs are unique identifiers that work like a product ID.

Use any of the open publishing tools:

1. Registry Assistant Publishing API
2. Bulk Upload
3. Manual Entry
4. Web ingest

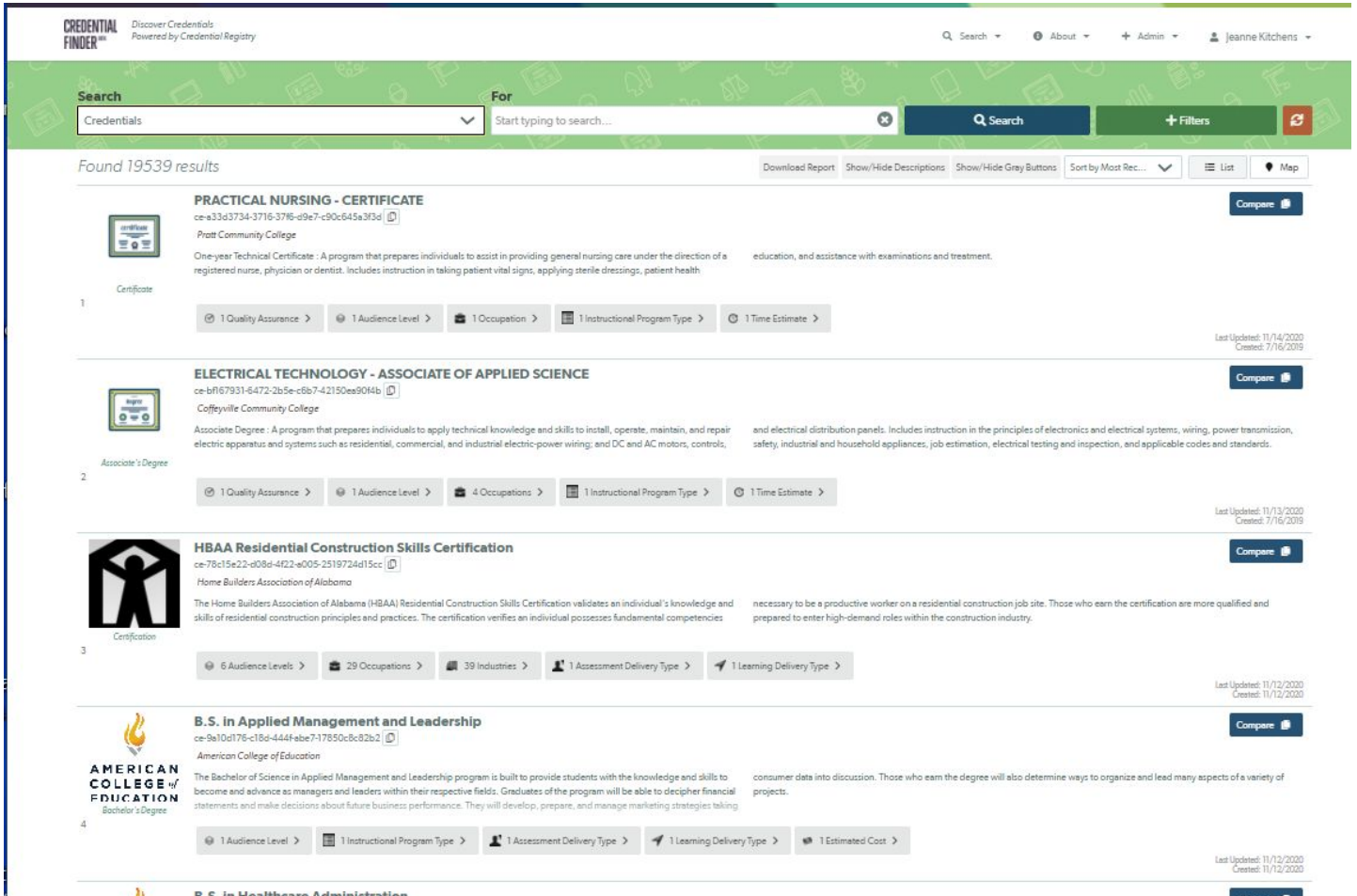
Use the data in the Registry to populate information in apps and systems.

See the data in the Registry via the Credential FInder.

The Credential Registry is not for issuing credentials or for personally identifiable information about people.

Credential Finder

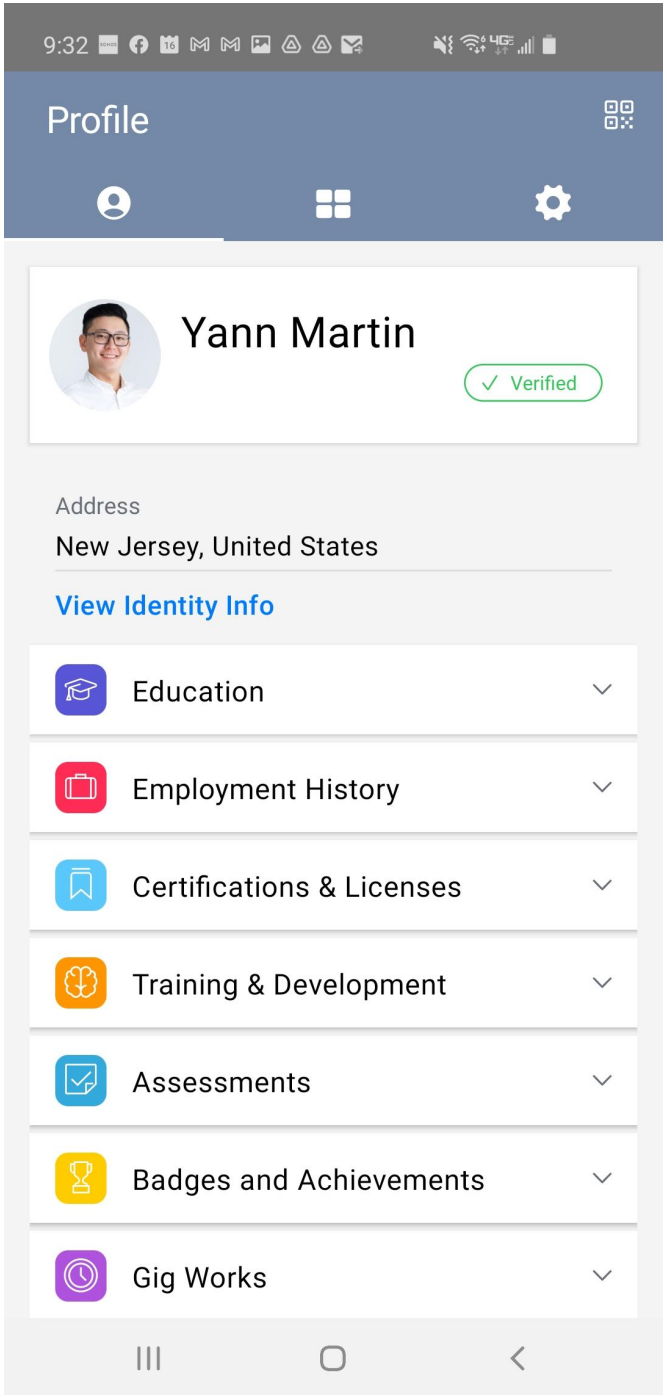
See all of the information using the Credential Transparency Description Language in the Credential Registry.
https://credentialfinder.org



Learning and Employment Records (LER) Example

An LER is a digital record of learning that can document learning wherever it occurs, including at the workplace, through an education program/experience, through community activities, and/or through military training.

The design and format of the CTDL and Credential Registry are compatible with LERs.



Yann Martin's User Story Example from the Velocity Network Foundation

Yann is a Registered Nurse (RN) working in a New Jersey hospital. He holds a BSN degree from the Starfield College, NJ.

After getting married he and his partner decide to move to Florida. He is looking for a job in a hospital near their new FL home.

In order to be licensed in Florida Yann must provide verification of his degree and NJ License. He downloads the Velocity wallet to his cell phone and verifies his identity. He then collects his BSN degree from his college and his RN license from the NJ board.

Yann uses Velocity to share his license as well as his BSN degree while applying for a license-by-endorsement through the Florida Nursing degree Board of Nursing website. The FL board then verifies his license.

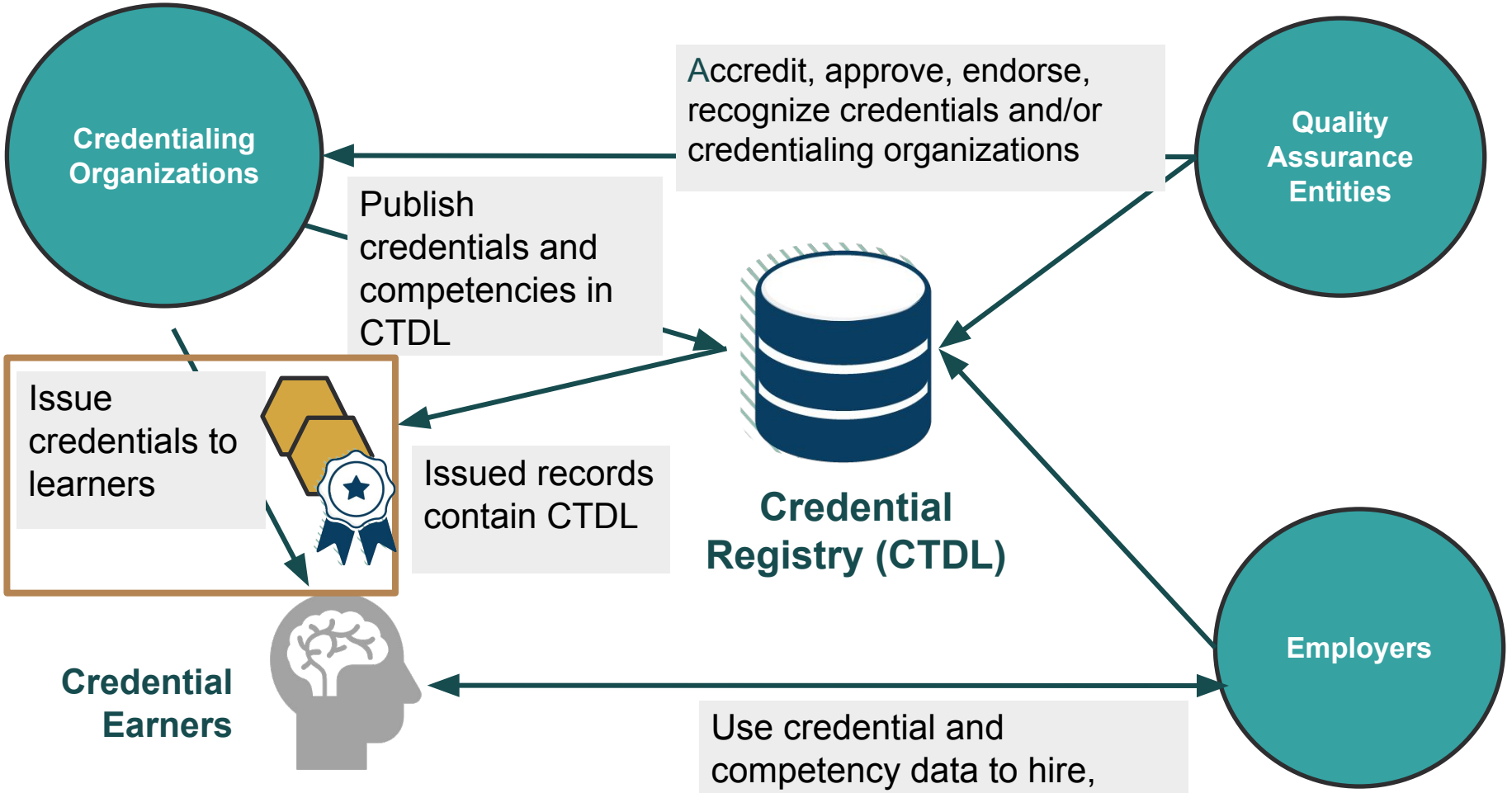
After some job searching, he comes across an interesting LPN job offer in a local long term care center, the Autumn Leaves Care Center. During his BSN studies he had taken two courses in gerontology although eventually he did not pursue Long Term Care as a specialty. He decides to share the course completion certificates, hoping it will help him get the job. Yann is accepted to work on the condition that he completes studies towards a Gerontological Nursing Certification.

He applies for a tuition reimbursement program within the Autumn Leaves Care Center.

Yann enrolls to a training program that is aimed at preparing for the Gerontological Nursing Certification RN-BC exam. To meet the requirements of the tuition reimbursement program he needs to verify not only that he completed the training but also that he had started it. After having completed 2,000 hours of clinical practice in the center he receives a badge and after having completed the training too, Yann is ready to take the exam. He passes the exam and receives his certification from the Accreditation Board for Specialty Nursing Certification of the ANCC (American Nursing Credentialing Center) which he gladly shares with the Autumn Leaves Care Center.

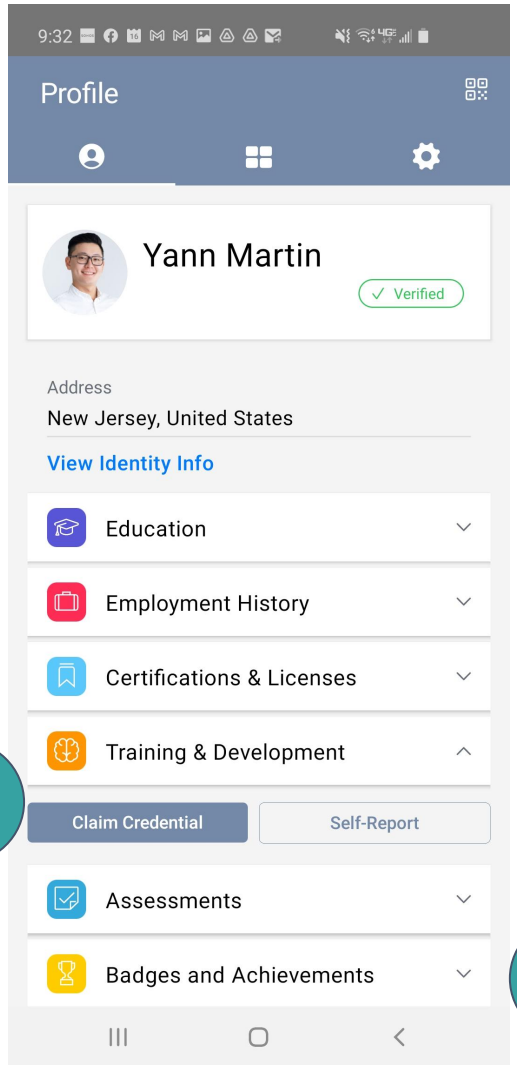
Credential and Competency Ecosystems

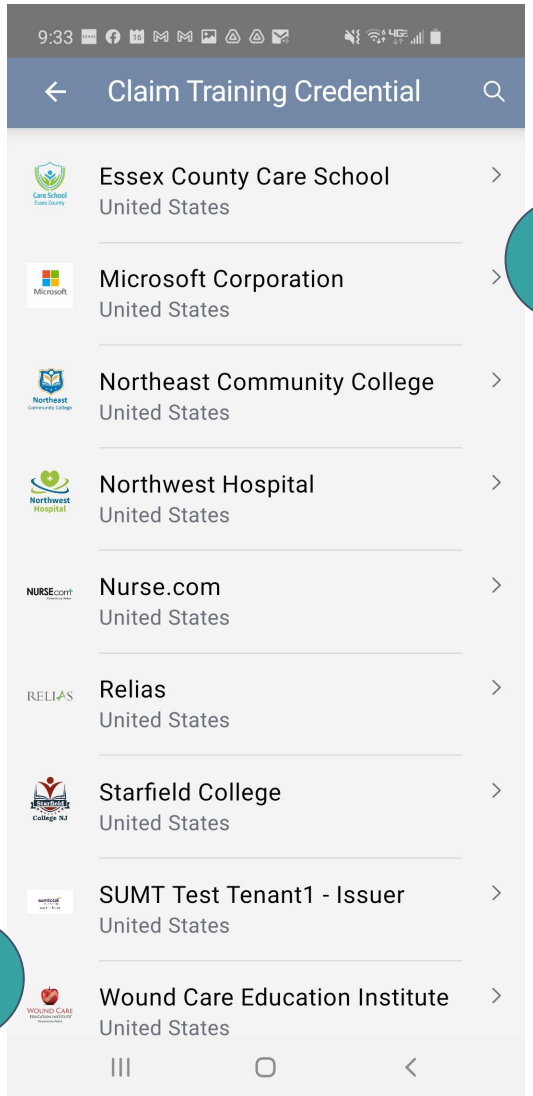
This diagram shows how the Credential Transparency Description Language (CTDL) and Credential Registry enhance LERs.

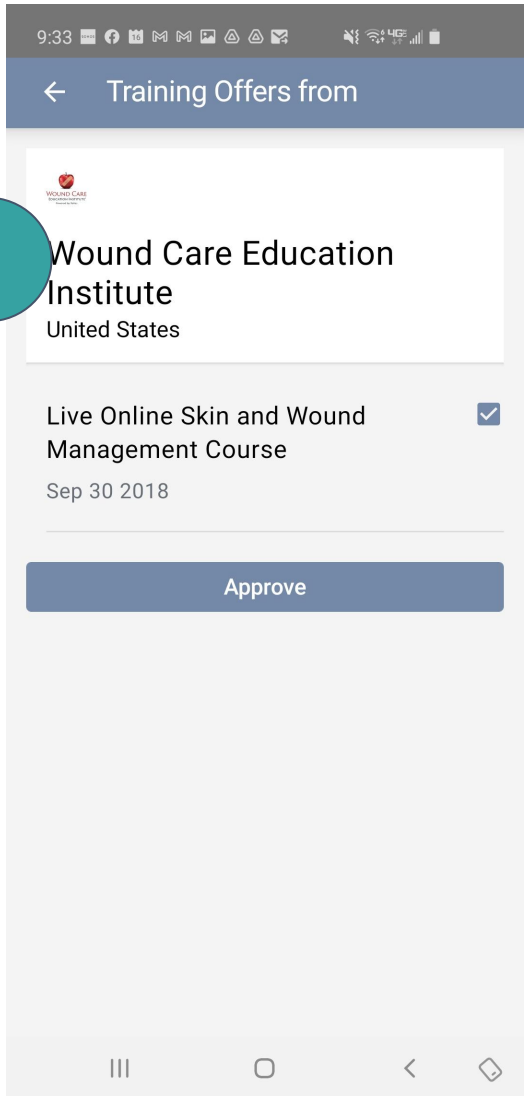


LER Using CTDL Example

Velocity Network Foundation is piloting LERs. This is an example of an LER.

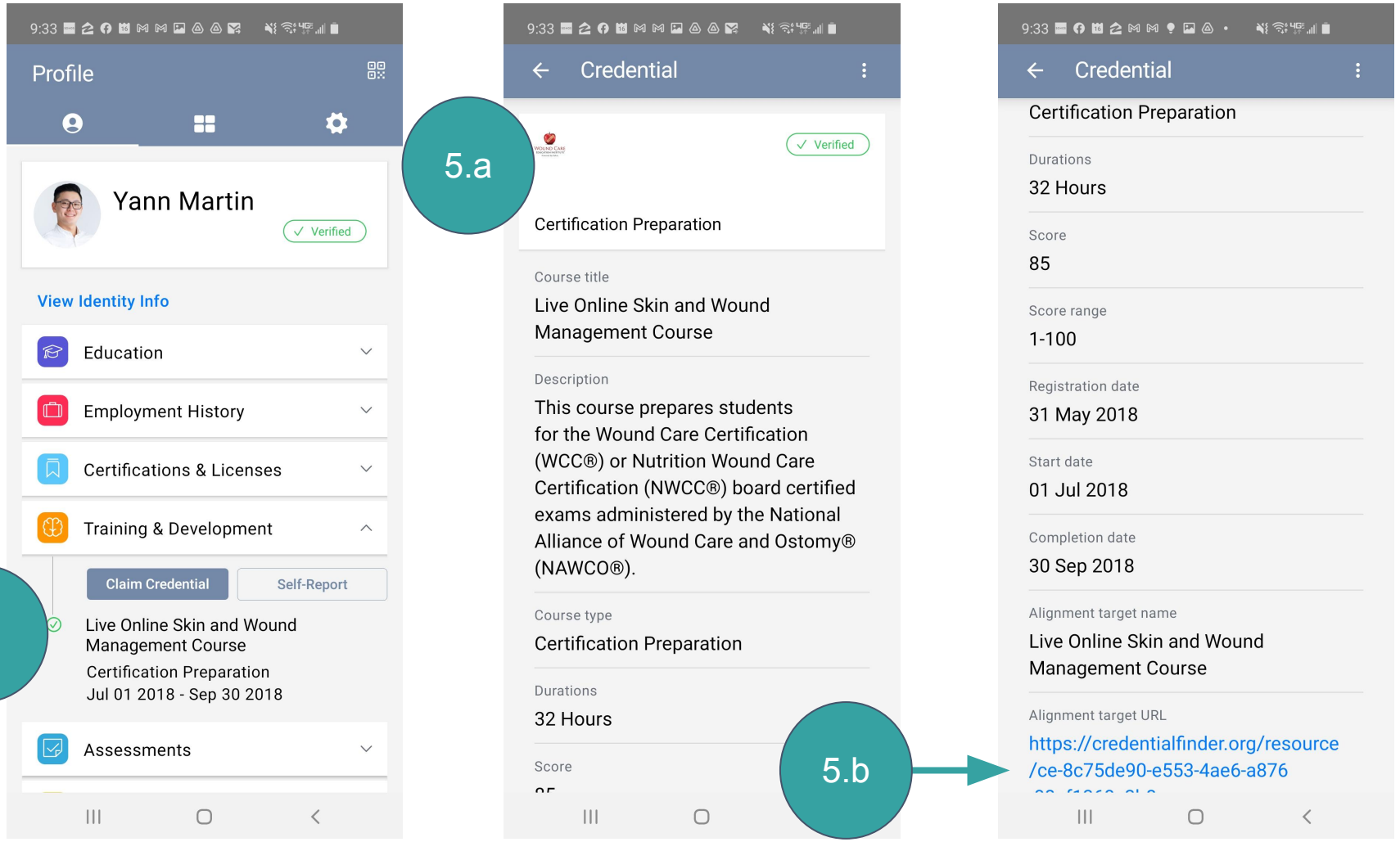






LER Using CTDL Example

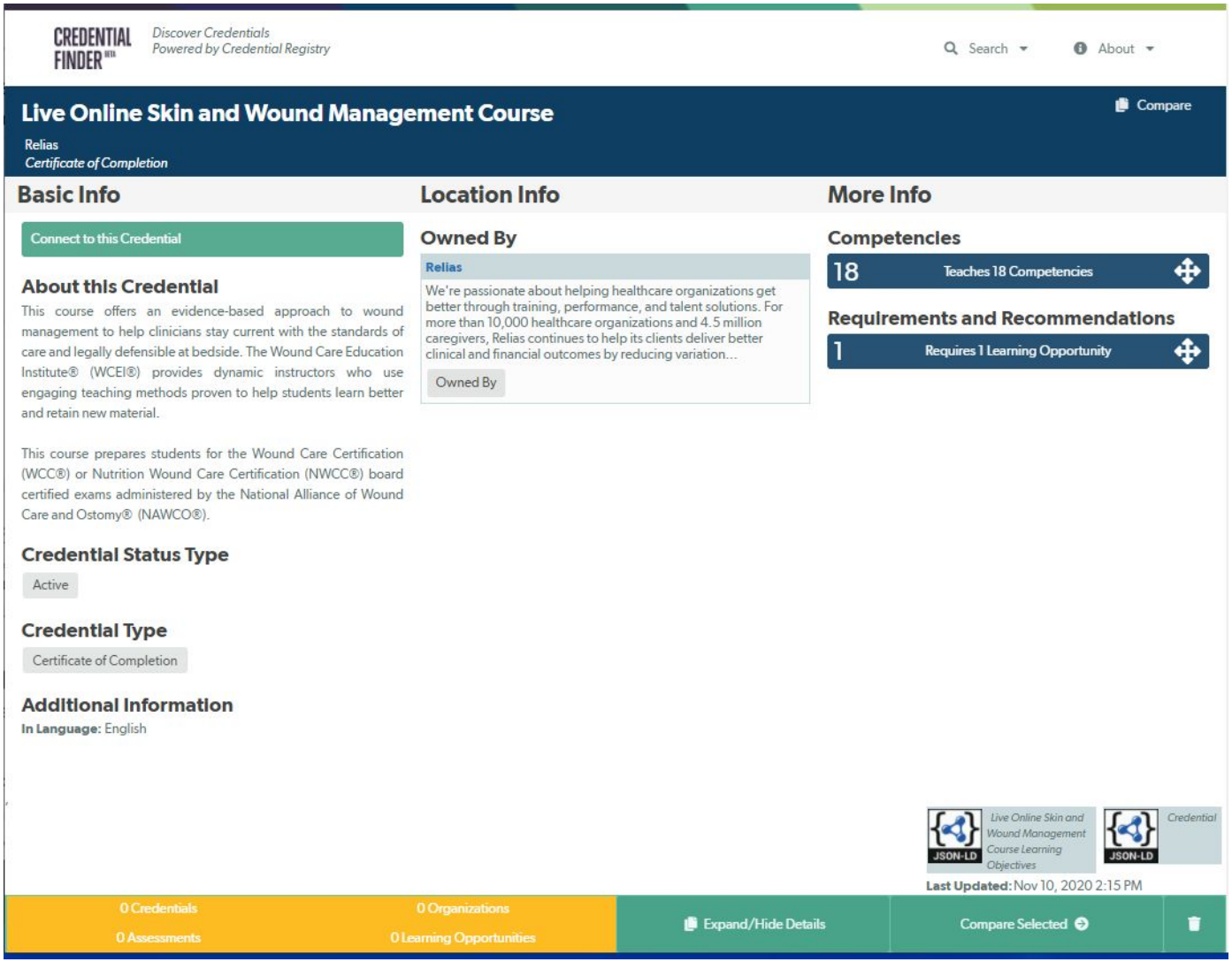
Yann used the app to claim his verified credential that he can now share.



LER Using CTDL Example

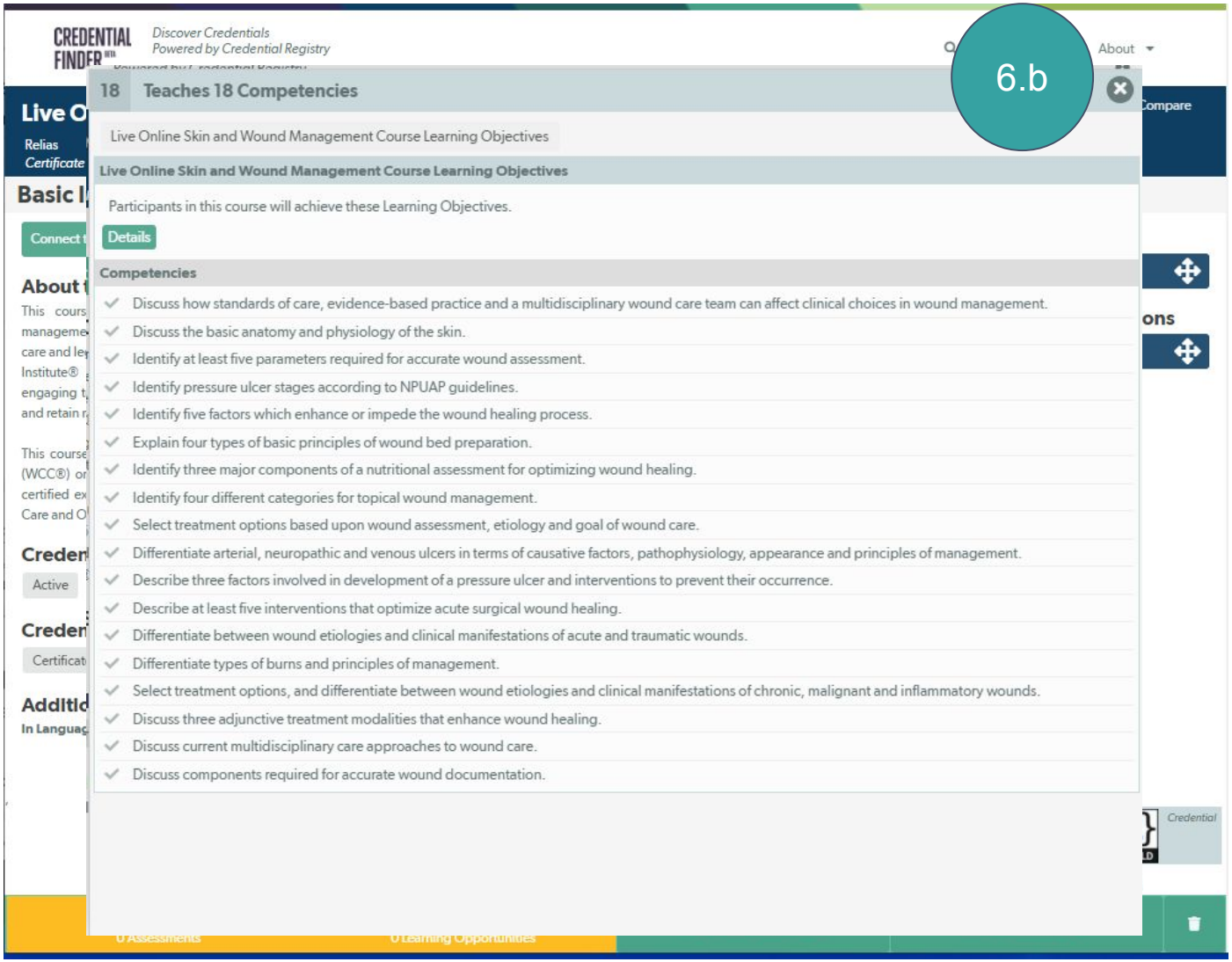
Yanni's verified credential links to information about it In the Credential Finder.

6.a



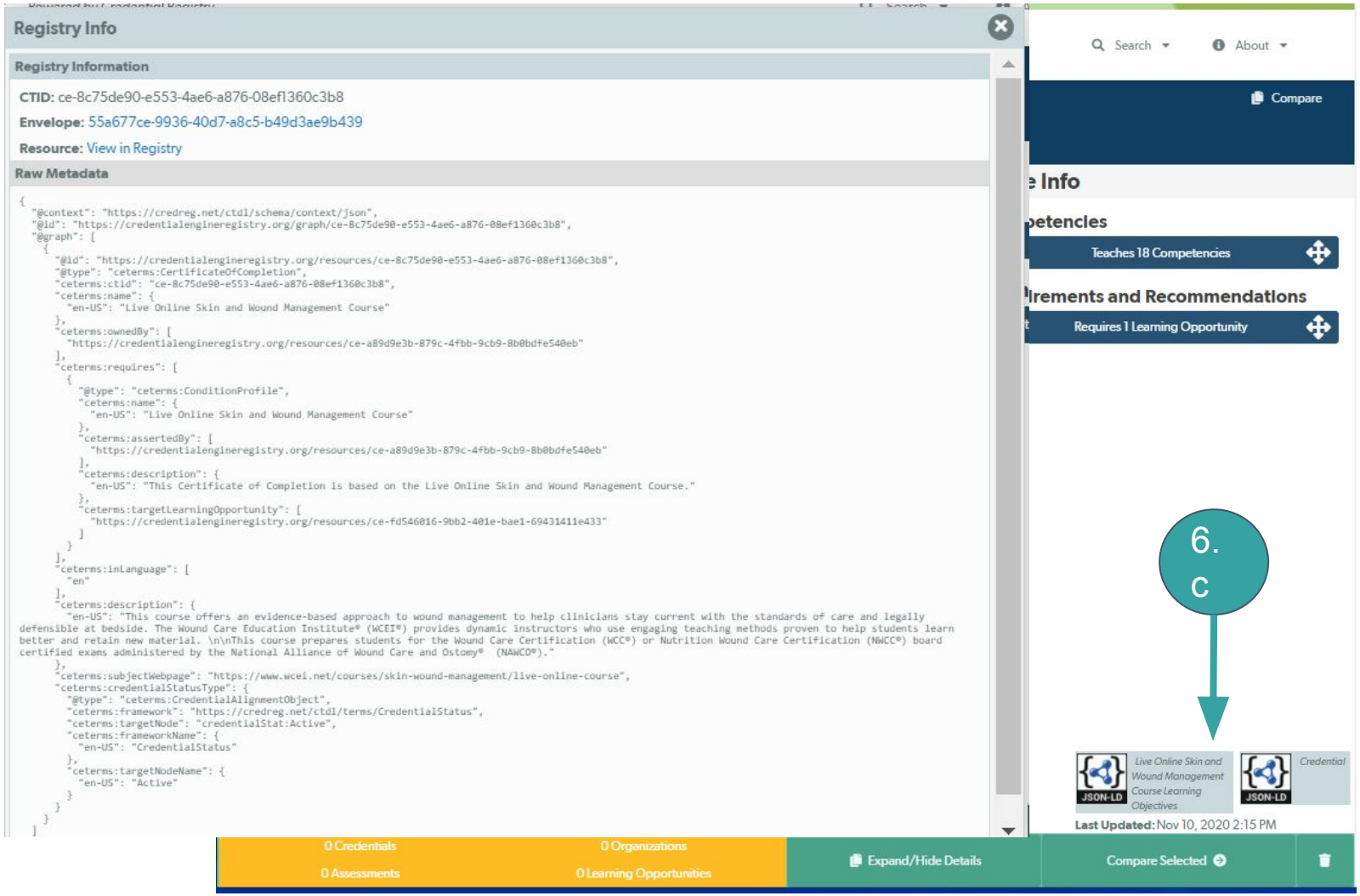
LER Using CTDL Example

This credential includes the competencies earned.



LER Using CTDL Example

At the bottom, right corner of the page about the Credential, click to see what the data looks like in the Credential Registry.

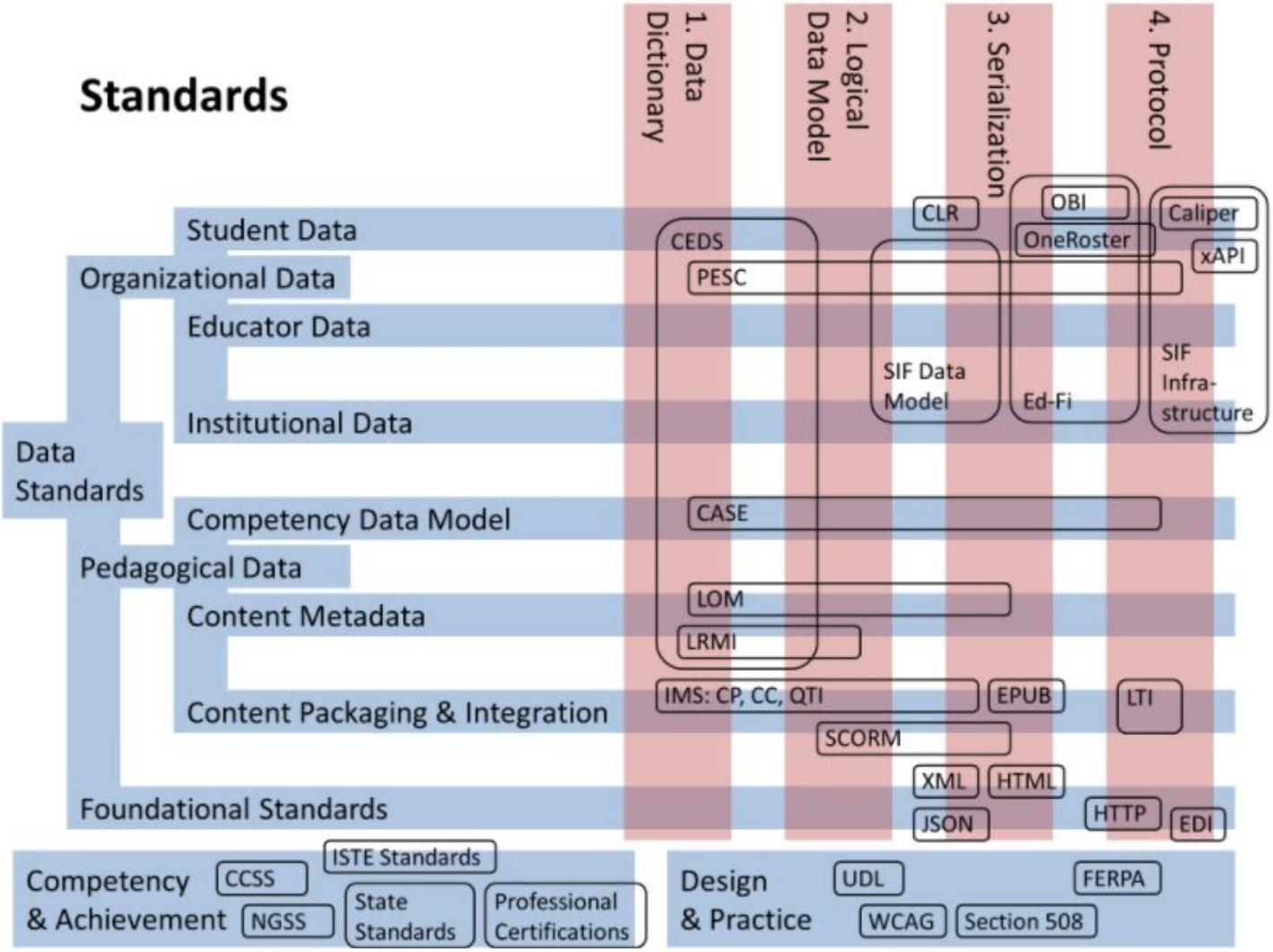


How You Can Participate

- Subscribe to Credential Engine News and Follow on Social Media https://credentialengine.org/subscribe/
- Explore credential and competency information published to the Credential Registry via the Credential Finder https://credentialfinder.org
- Learn more about Credential Engine's open services https://credentialengine.org/services/
- Create a free Credential Engine account to publish credential and competency information to the Registry https://apps.credentialengine.org/accounts/Account/Login
- Learn more about LERs and join and LER Pilot https://lerhub.org/home/dashboard
- Learn about the Credential Engine's technologies and CTDL https://credreg.net
- Dig deeper to understand how CTDL and Credential Registry support LERs https://credreg.net/quickstart/ilwrguide
- Learn more about Velocity Foundation https://www.velocitynetwork.foundation/

Data Standards and Interoperability

Brandt Redd, CTO, MatchMaker Education Labs



https://www.edmatrix.org

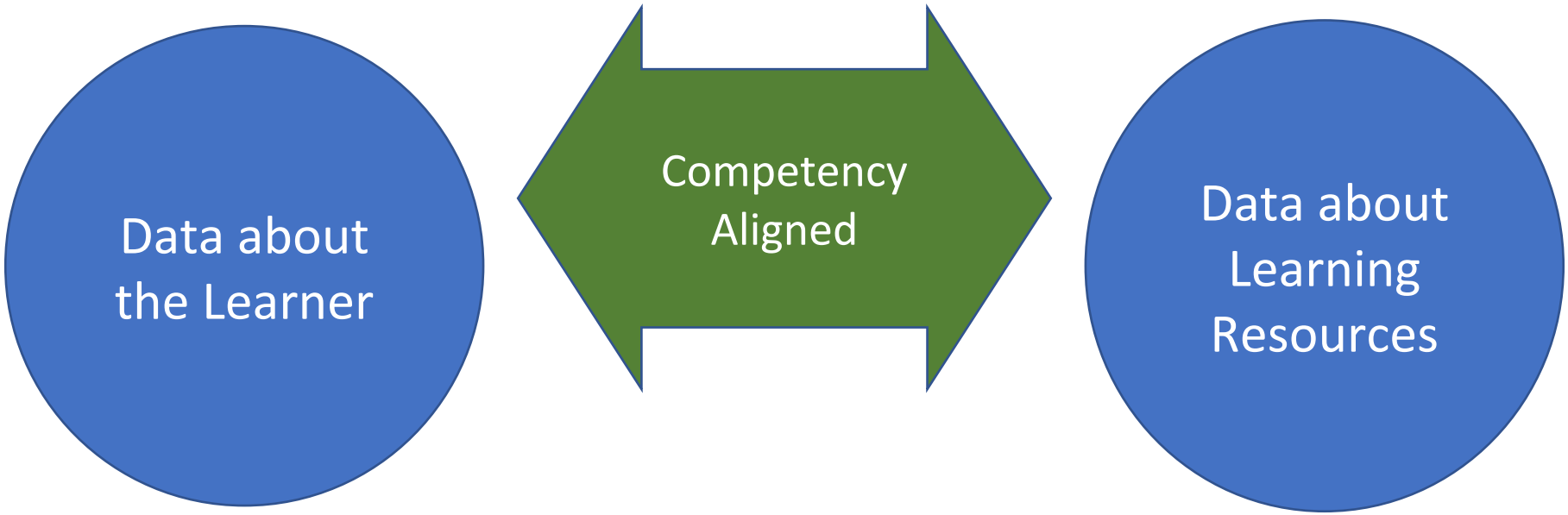
Progress

- **1984:** Bloom's Two Sigma Problem: Benjamin Bloom shows that individual tutoring combined with Mastery-Based Learning results in 2 standard deviations better learning.
- **1997:** Western Governors University formed with an emphasis on competency-based learning in higher education.
- **2000:** No Child Left Behind causes states to write competency standards for K-12 education.
- **2010:** Common Core State Standards offer some degree of correlation between state standards.
- **2011:** Kurt VanLehn (ASU) revisits the Two Sigma Problem comparing intelligent tutoring systems with human tutoring. He finds similar achievement levels when mastery thresholds are matched.
- **2012:** iNACOL (now Aurora) launches CompetencyWorks.
- **2019:** iNACOL changes its name to the Aurora Institute as its research has catalyzed an emphasis on student-centered and competency-based learning.
- **2020:** Competency-Based Learning gains new attention under the unique challenges of COVID-19.

Competency Scenarios

- As a USAF Medic, what does Mary need to earn an EMT certification in IOWA?
- Gregoire has been studying quadratic equations. How does he know if he has mastered the topic?
- What competencies must be addressed in a new learning product?
- The entire class failed the unit test, what Learning Resources are best to remediate?
- Joe studied at the University of Utah, now he's transferring to the University of Virginia. What courses or competencies transfer?
- Is there a more appropriate learning resource for a learner that loves aerospace examples?

Personalized, Competency-Based Learning happens at the Intersection



Learners, teachers, and AI make well-informed decisions about learning when data are aligned.

To Support Competency-Based Learning...

- Data about the Learner
- Data about Learning Resources
- Data about Competency Frameworks

Data About the Learner

- ILR: Interoperable/Integrated/Independent Learner Record - LER: Learning and Employment Record
  - IEEE LTSC P1484-2 Integrated Learner Record https://sagroups.ieee.org/1484-2/
- CLR: Comprehensive Learner Record
  - IMS Global and AACRAO https://www.imsglobal.org/activity/comprehensive-learner-record
- Access 4 Learning: SIF Data Model
  - https://www.a4l.org/page/SIFSpecifications
- Common Education Data Standard (CEDS)
  - https://ceds.ed.gov

Data about Learning Resources

- Learning Resource Metadata Initiative (LRMI)
  - http://www.lrmi.net/specifications/lrmi/
- Learning Metadata
  - IEEE LTSC P2881
    https://sagroups.ieee.org/2881/

Competency Frameworks

iNACOL Blended Learning Teacher Competency Framework

The Learning Accelerator

iNACOL International Association for K-12 Online Learning

MedBiquitous

COMMON CORE STATE STANDARDS INITIATIVE

PREPARING AMERICA'S STUDENTS FOR COLLEGE & CAREER

PMI Project Management Institute

PMP® Certified

o*net™

NEXT GENERATION SCIENCE STANDARDS

For States, By States

Texas Essential Knowledge and Skills

CISCO CERTIFIED CCNP

ASCP BOC

ASCP BOARD OF CERTIFICATION

Microsoft Microsoft Certified Professional CERTIFICATION

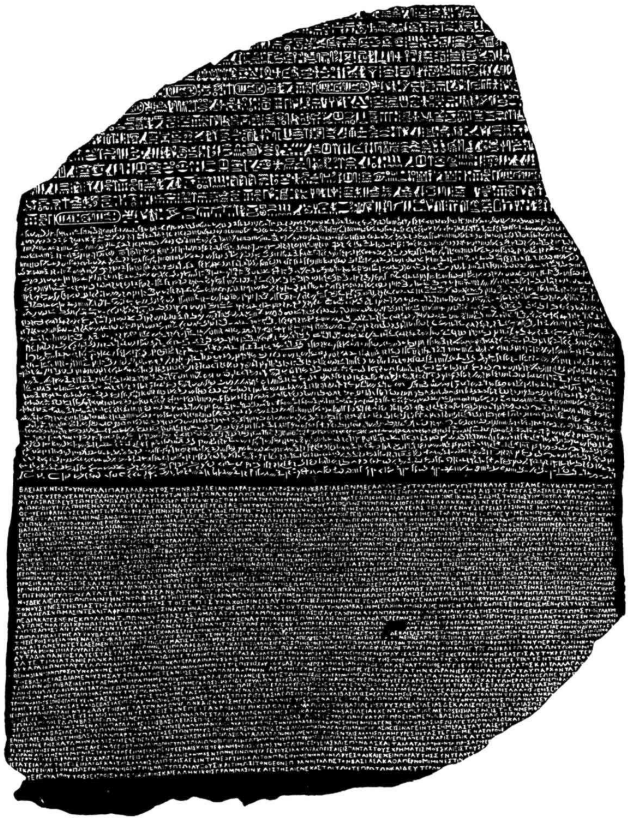
Many, many others.

Data Formats for Competency Frameworks

- Achievement Standards Network
  - ASN Description Framework Schema
    http://standards.asn.desire2learn.com/
- IMS Competencies and Academic Standards Exchange (IMS CASE)
  - https://www.imsglobal.org/activity/case
- Credential Engine
  - CTDL-ASN
    https://credreg.net/ctdlasn/handbook
- T3 Innovation Network
  - Open Competency Framework Collaborative (OCFC)
    https://www.ocf-collab.org/

Challenge: No Single Competency Framework

- Competency efforts break down when crossing borders between institutions, geographies, and domains.
  - School-to-school
  - State-to-state
  - K-12 to higher-ed
  - School to workforce
  - Military to private industry
- A comprehensive learner record may reference competencies from a dozen or more frameworks.



MatchMaker Education Labs

- Competency-Oriented Matching of *Educational Elements*
  - Competency Statements
  - Curriculum
  - Learning Resources
  - Learner Records
  - Assessments
  - Job Requirements
  - Demonstrated Skills

Q&A

- Contacting Us
  - Jeanne Kitchens: jkitchens@credentialengine.org
    - https://credentialengine.org/
  - Michael Jay: michael@matchmakeredlabs.net
    - https://matchmakeredlabs.net
  - Brandt Redd: brandt@matchmakeredlabs.net
    - https://matchmakeredlabs.net
    - https://www.edmatrix.org

Quick Feedback

One-Minute Survey: https://www.surveymonkey.com/r/Aurora_11-17

AURORA INSTITUTE

Stay Connected

www.aurora-institute.org

communications@aurora-institute.org

(703) 752-6216

A New Dawn for
Every Learner