Transforming eXtension Professional Development

Objective: Improve the efficiency, validity, and effectiveness of professional development for 15,000 eXtension professionals through competency-based design, assessment, and credentialing.
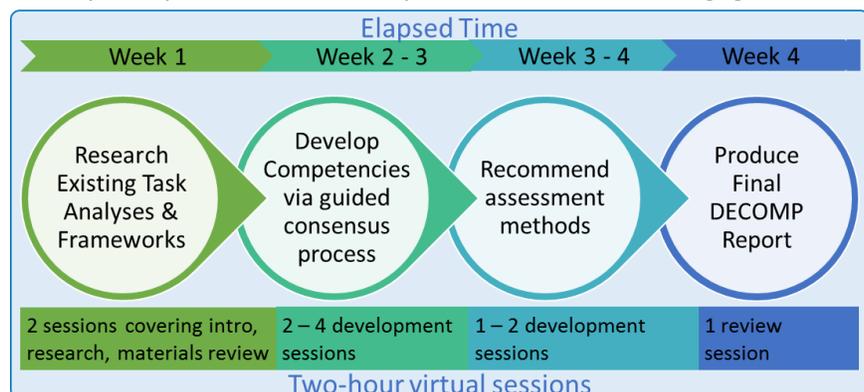
Competency-based Education and Training: In competency-based education and training, requirements are explicitly defined in terms of collections of skills, knowledge, and abilities (i.e. competencies), each of which is measurable and can be assessed. Every program, course, or lesson is tagged with the competencies it addresses and assesses. When learners take a course, the competencies they achieve are recorded in badges and credentials. A competency-based approach enables professionals to compare the skills they have with the skills they need and find opportunities that efficiently bridge the gaps.

The advantages of competency-based approaches have been recognized for decades, but only recently has the confluence of enabling technologies and the widespread availability of educational and training opportunities spurred national efforts such as the Competency-based Education Network, the Credential Transparency Initiative, and the Competency Model Clearinghouse. The eXtension Foundation is taking a leadership role in the extension community via three initiatives.

Competency Framework Development

The first step in implementing a competency-based approach to professional development in a field is to develop a *competency framework* that lists the relevant competencies and recommended assessment approaches. Extension engaged Eduworks Corporation to create a process for developing such frameworks. This process, called *CFD* (for "competency framework development") is modelled after the widely used DACUM process for curriculum development. Like DACUM, it relies on input and consensus from a group of practitioners. Unlike DACUM, the CFD process is designed to be run virtually (e.g. via a tool such as Zoom, WebEx, Adobe Connect, or GoToMeeting) and is also designed to take advantage of prior work done if available.

Participants in CFD: The CFD process is run by one or more trained facilitators trained in the CFD process. The facilitators will engage with an organization to recruit four to seven practitioners who each commit to about 12 hours of work over a period of approximately 2 weeks, including multiple online sessions during that period. The participants should all be practitioners who are engaged on a day-to-day basis in the work for which the framework is being developed. CFD is based on distilling a competency framework from actual practitioners sharing experiences and goals. In the eXtension Foundation setting, practitioners should be involved in fieldwork or professional practice and not solely as administrators, researchers, or classroom instructors.

Elapsed Time			
Week 1	Week 2 - 3	Week 3 - 4	Week 4
Research Existing Task Analyses & Frameworks	Develop Competencies via guided consensus process	Recommend assessment methods	Produce Final DECOMP Report
2 sessions covering intro, research, materials review	2 – 4 development sessions	1 – 2 development sessions	1 review session
Two-hour virtual sessions			

The flow of the CFD process is shown above with additional explanation below.

Initiation and Research: The CFD process starts with an introductory session in which the practitioners are introduced to CFD and get to know the facilitators and each other. The facilitator educates the practitioners about the goals of CFD and what a competency framework is. During this initial meeting, practitioners help identify any existing task analyses, lists of competencies, or lists of learning outcomes that could be used as a starting point. These will typically come from a DACUM process, a professional association, or a training program. The facilitators will perform further research and use these to develop a set of initial suggestions and examples for tasks, skills, and knowledge. This primes the process and helps align the output with data that is considered authoritative or accepted by the community of practice.

Competencies: Participants are guided to identify the high-level competencies required for successful practice. Typically, these will be about five to ten in number and will be broken down into associated skills, knowledge, and abilities. CFD focuses on the skills and knowledge that would typically be assessed and certified in courses or credentials. In CFD, skills are defined using *skill statements* consisting of an action verb, and object, and a condition. Knowledge components are expressed through *declarative statements*. The group brainstorms the skills, knowledge, (and occasionally abilities) that are necessary for their job. Once the list of skills, knowledge, and abilities is finished, they are grouped into competencies.

Assessments: Knowledge can be acquired by reading, listening, or observation, whereas skills must be acquired through training and practice. The assessments that typically best test knowledge is recall or explanation; unlike knowledge, skills are typically best assessed by asking the learner to apply them. After competencies are developed, the group creates a rubric of recommended assessment practices for each competency. These help determine the validity of curriculum materials. Measurability is a key metric of every competency, skill, and knowledge component. If a competency, skill, or knowledge is difficult to assess, then it may be replaced or re-defined to make it more easily measured.

Final Product: The facilitators collate and format all of the data produced during the CFD sessions into a final CFD report. This is reviewed by the practitioners and finalized by the facilitators. The CFD report includes a competency framework and suggested assessments or assessment types for every competency, skill, and knowledge component.

Technology Development

Competency frameworks are only useful if they can be incorporated into real-world instruction, and in today's digital world that requires supporting technology. In the case of the eXtension Foundation, this means updating Extension Campus so that courses and lessons can:

- Be tagged with competencies;
- Report the attainment of competencies based on assessments;
- Issue badges that attest to acquisition of competencies.

This will be done using two technologies: The new version of Moodle (version 3.1) that is scheduled to be released in Summer 2016 and technology produced by the US Government funded open source Competency and Skills System project (CASS).

Moodle 3.1: Moodle 3.1 is the first release of Moodle that includes built-in support for competency-based education. In Moodle 3.1, it is possible to define competency frameworks at both the site and category level and relate them to badges and courses. Instructors can select competencies that are addressed within a course and define assessments that impact student competency ratings. Competencies can be manually rated, or automated handling may be prescribed,

including features such as setting completion status, attaching evidence, sending for manual review, or triggering a badge award. Similarly, students can search for courses that contribute to particular competencies and build customized learning plans. As students make progress through learning plans, each achieved competency is marked as complete. Students can also submit potential competency evidence for review in a learning plan. Reporting features also offer competency-based views and learning plan statuses.

CASS: Although Moodle 3.1 is a major step forward, the competencies entered into an instance of Moodle are specific to that instance. In the eXtension Foundation's vision, the same competencies should be shared across all member organizations and with the public. This is what CASS enables. CASS is infrastructure for storing, maintaining, and sharing competency frameworks. With CASS, multiple learning management systems and credentials can reference the same competencies. In addition, CASS can implement rules for deciding when a learner has demonstrated competency based on assertions about the related competencies and skills.
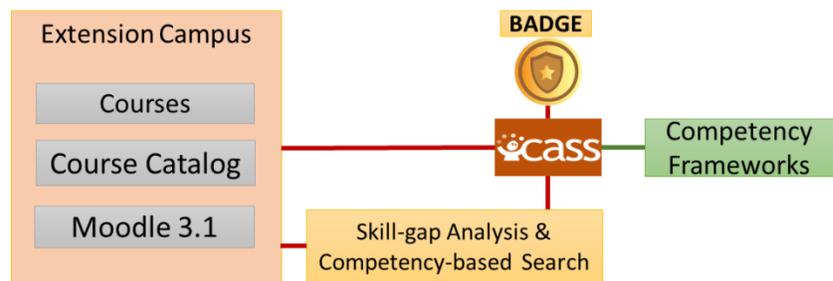
Integrating CASS into the Extension Campus platform provides tools for authoring, importing, and exporting competency frameworks and a mechanism for sharing the same competencies with other systems and tools. Examples include credential registries, badging tools, and tools that let users find efficient learning pathways for closing specific skill gaps.

Content Curation

"Curation" in the context of Extension Campus refers to three activities. First, it refers to the process of tagging courses, lessons, and other course components with associated competencies. Second, it refers to the validation of those competencies, enabling competencies and badges to be reported by courses. Finally, it refers to validating that competencies and credentials are being assessed and reported in accordance with an applicable framework. A well curated system is required for competency-based education to be effective. These efforts will allow users to search for materials using competencies and will support applications that help users find efficient learning paths for acquiring competencies.

Current Efforts: To begin the transition to competency-based education and training, the extension Foundation will analyze a small number of courses available through the Extension Campus and hand-tag them with competencies. For example, a course on social media communications may be tagged with the competency, "Communicating ideas succinctly". Competency tagging allows Extension members seeking the "Communicating ideas succinctly" competency to search for courses that contain the specific competency they are looking for. Tagging courses and lessons enables the Extension Campus to issue appropriate competency badges upon course completion. This content curation work will start with a small number of offerings and will be facilitated by tools that make aligning courses with content faster and easier.

Next Steps: Currently, Moodle 3.1 will be used to manually tag courses and course content with related competencies. This will enable Extension to gather data and requirements about the curation process. Curation will be transferred to a version of the CASS competency alignment tool scheduled to be developed before the end of 2016. CASS infrastructure will integrate with both learning object

registries and credential registries. The CASS tools will allow the eXtension Foundation to easily transfer competencies, content, competency frameworks, and other learning objects between members and with external organizations. The shift to CASS infrastructure will enable the eXtension Foundation to engage a broad community of competency and credentialing organizations.

Long term Vision: In our long term vision, extension professionals will be able to find and design professional development programs and learning plans based on competencies they need to acquire to learn a new practice, to obtain a new credential, or to maintain their professional skills. In this vision, content curation will be aided by tools that support tagging and reviewing offerings. These tools will facilitate viewing courses, matching them to competencies, and comparing the assessment methods used in the courses to those recommended in the framework. In addition, we envision an app that allows extension professionals to enter their current competencies, enter a professional development goal, and view one or more recommended courses to take to efficiently achieve that goal. The work being done now is laying the groundwork for achieving this vision.