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Training Excellence: What Does Success Look Like?

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The National Institute of Standards and Technology (NIST) Office of Weights and Measures (OWM) has been working the last few years toward compliance with several educational standards in support of our training program for the legal metrology and laboratory metrology community. We believe that complying with some rigorous models will help us provide excellent training opportunities for our stakeholders. These standards include the American National Standards Institute/International Association for Continuing Education and Training (ANSI/IACET) standard for Continuing Education and Training, the Baldrige Quality Award-Educational Criteria, and portions of ISO/IEC 17024 on personnel certification. In fact, the Baldrige Quality Award criteria are presented in its publications as a framework for "performance excellence" and references "benchmarking" in several instances. So, even without becoming an IACET Authorized Provider or receiving a Baldrige quality award, we can benchmark our operations against these documents to assess training excellence and to identify opportunities for improvement.

As we got started on the strategic aspects of applying these standards to our OWM training efforts, we began by asking the question, what does success look like? We asked our staff, key customer groups, and training participants, and we got a long list back. We matched up the list of success factors with the criteria in each of the documentary standards, and it fit together remarkably well. We didn't get as complete a list from staff and stakeholders as were stated in the standards, so we identified a few gaps. The educational standards included a few additional items that, upon review, we agreed were important for success, even though they were not explicitly stated in the feedback we gathered.

The rest of this article covers six ideas of what training excellence looks like in terms of the standards and our efforts at NIST. These concepts are important, whether you are a student, managing staff development, or are a trainer yourself. Some key sections of the documents are highlighted as notes in case you'd like to explore these documents further.

A key question for you, as you consider the highlighted areas, is how do you measure success of training? ISO/IEC 17025 for calibration and testing laboratories requires labs to plan for training needs and evaluate training effectiveness. What are your measures of success in your needs assessment and effectiveness evaluation?

Success means we have an infrastructure to manage training efforts.
We need a way to identify the organizational structure and which staff is involved in what aspects of our training efforts. In the Office of Weights and Measures, we have to coordinate with about eight other NIST groups to schedule, offer, and conduct one of our courses. Those of us involved in that coordination need that process documented for consistency and effectiveness. We have online calendars for our training and application processes for students to register for courses. We also have online access to student transcripts to enable participants to track their prior training from our office.

Note: *ANSI/IACET Section 1, Organization, 2, Responsibility and Control, 3, Support Systems, and 9, Maintaining Learner Records. Baldrige Section 1, Leadership, Category 6, Process Management.*

Success means instructors are educational professionals and subject matter experts.
In the NIST OWM, we have been providing regular professional development opportunities for our staff to become better trainers and to gain additional experience in our subject matter. We have sponsored several Train the Trainer workshops at NIST in the past three years and have opened up the training to others here at NIST. We have also been sharing best practices on effective activities and assessment methods for our seminars – including the classroom, the laboratory, and via webinar.

In partnership with the NCWM, additional Train the Trainer courses are being planned for regional weights and measures trainers. Individual jurisdictions and other organizations can also assure that their trainers are educational professionals by identifying local developmental opportunities
for those employees that conduct routine training.

Note: ANSI/IACET Section 6, Planning and Instructional Personnel. Baldrige Section 5, Workforce.

Success means we evaluate training and training programs.
Course evaluations have long been a part of the OWM training program. However, they have historically been little more than satisfaction-level evaluations to ask, "Did you like the training?" Developing a more rigorous evaluation process for each course and the entire program has been our effort in the last three years. We have been considering how to better evaluate training efforts through the use of the Kirkpatrick/Phillips evaluation models. Note that all of the seminar evaluations at NIST consider more than participant satisfaction levels. A key aspect of the evaluation is whether or not the data gathered is actually used to measure effectiveness of training and to identify areas for future improvement. So, at NIST, we also often conduct an After Action Review of the courses and consider input from both the students and instructors in identifying opportunities for change.

We have been conducting a follow up evaluation of some students to assess application and impact, and intend to expand this effort in the future.

Note: ANSI/IACET Section 10, Program Evaluation. Baldrige Category 4,Measurement, Analysis, and Knowledge Management.

Success means we design for and measure application and impact.
When attending a NIST training course, students are sometimes told, "It doesn't matter how much you know if you don't apply it to your work!" But, getting participants to apply new learning for effectiveness and impact takes more than just saying a few words about doing it. Designing courses so that students get beyond the "knowledge" level on Bloom's taxonomy to the "application" (or higher) levels takes effort and time. We have completely redesigned our OWM laboratory metrology courses with "application" levels in mind. We have selected course learning objectives that drive application. We have selected activities that allow practice at the application level. And, we assess student participation on whether they have successfully completed course objectives at the application level. As we begin to assess application, we are moving away from just automatically granting everyone a certificate of attendance (versus a certificate of successful completion).

For the weights and measures community as a whole, it is up to each individual instructor to apply these concepts. Further, each instructor needs to be willing to assess students at the stated levels. Instructors may not want to police this aspect of learning, but it's a responsibility all trainers should take on.

Note: ANSI/IACET Sections 4, Learning Event Planning, and 7, Content and Instructional Methods. Baldrige Section 7, Results.

Success means we gather data on training needs.

We need to have an internal planning process to identify future courses. This area is one where we have great opportunities for improvement. In the NIST OWM, we have many channels for input into future training offerings. These include individual requests, identified needs based on commonly asked questions, new technologies that will require a new training effort, and new marketplace challenges. Collecting all of this data in a standardized way to prioritize our efforts relies on the technical expertise of our staff to filter all of the data and make decisions. However, this is far from a standardized, documented process.

While we may be doing a good job identifying training needs, we could do a better job by formalizing how we collect and analyze data on training needs and use it to prioritize our training efforts.

Note: ANSI/IACET Section 4, Learning Event Planning. Baldrige Section 6, Customer Focus.

Success means we have a partnership among the trainer, student, and student's managers.

No matter how good a trainer is in a class and how excited a student is about gathering and applying new information into their work, no improvements will be made without the support of the manager back on the job. This is another area where we all have an opportunity to improve. Engaging the manager is essential for all aspects of our training cycle: from needs assessment to establishing learning objectives and from conducting the training to applying it on the job. We sometimes have requests from managers after the event on how well their staff performed in the class. But, rarely do we get questions from the managers ahead of time about what they could expect from the participant after the training. This is an effort we are pursuing within OWM.

Before you schedule training for your organization, think about this partnership as you begin planning the event. Provide your expectations to the instructor and students ahead of time, including desired learning objectives. And, if you are a trainer, interact with the manager prior to conducting training to make sure the training will meet management's expectations. But don't forget the student's role in all of this. Both managers and trainers should communicate the same expectations to the students for maximum effectiveness of training.

Note: ANSI/IACET Sections 4, Learning Event Planning and 8, Assessment of Learning Outcomes. Baldrige Category 7, Results.

Your Turn!

Training excellence means many things to many people, just as successful training means different things to everyone. However, by using the benchmark standards we can focus on some uniform factors, assess for compliance, select areas to highlight for our effectiveness, and select action items for continual improvement. You've read what we're doing. Now, it's your turn. What does training excellence mean to you? How will you assess training effectiveness for your staff? How will you assess the next training event in which you participate? Let us know at owm@nist.gov!