State of Illinois
EMS Education Committee Report
July 2014

Mentoring our instructors

In defining effective teaching there are two components:

- Teacher practices: How well they do the art and science of teaching
- Results: What teachers accomplish – *how well students learn*

The Danielson **Framework for Teaching** is a research-based set of components of instruction, grounded in a constructivist view of learning and teaching. The complex activity of teaching is divided into 22 components (and 76 smaller elements) that are clustered into four domains of teaching responsibility.

Each component defines a distinct aspect of a domain: two to five elements describe a specific feature of a component. Levels of teaching performance (rubrics) describe each component and provide a <mark>roadmap for improvement of teaching.</mark>

The Framework may be used for many purposed, but its full value is realized as the foundation for professional conversations among practitioners as they seek to enhance their skill in the complex task of teaching**. The Framework may be used as the foundation of a program's mentoring, coaching, professional development, and teacher evaluation processes**, thus linking all those activities together and helping teachers become more thoughtful practitioners.

Domain 1: Planning and preparation	**Domain 2: Classroom environment**
1a Demonstrating knowledge or content and pedagogy 1b Demonstrating knowledge of students 1c Setting instructional outcomes 1d Demonstrating knowledge of resources 1e Designing coherent instruction 1f Designing student assessment	2a Creating an environment of respect & rapport 2b Establishing a culture for learning 2c Managing classroom procedures 2d Managing student behavior 2e Organizing physical space
Domain 4: Professional responsibilities	**Domain 3: Instruction**
4a Reflecting on teaching 4b Maintaining accurate records 4c Participating in a professional community 4d Growing and developing professionally 4e Showing professionalism	3a Communicating with students 3b Using questioning and discussion techniques 3c Engaging students in learning 3d Using assessment in instruction 3e Demonstrating flexibility and responsiveness

Accessed on line: www.danielsongroup.org/article.aspx?page=frameworkforteaching; 7-5-12.

These ideas have always been part of the Framework for Teaching (but have we used them?)

- Intellectual rigor and reasoning
- Precision in thought and language
- Analysis and development of logical arguments based on evidence
- Conceptual understanding and application
- Strategic thinking
- Hard work and resilience
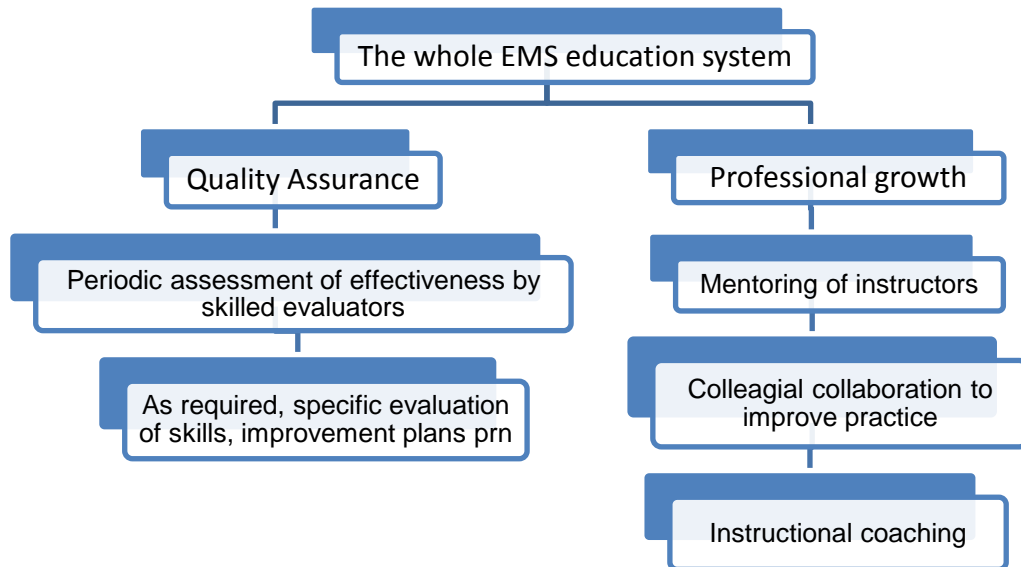- Student independence and responsibility for learning

Extrapolating from their research; <mark>**EMS has the following challenges with respect to the effectiveness of our instruction:**</mark>

- Curriculum work
  - Ensuring that the class units and lessons accommodate all the learning outcomes specified in the DOT Curriculum and/or National EMS Education Standards
  - Using texts that lend themselves to the level of analysis called for in at least 12th grade literacy standards
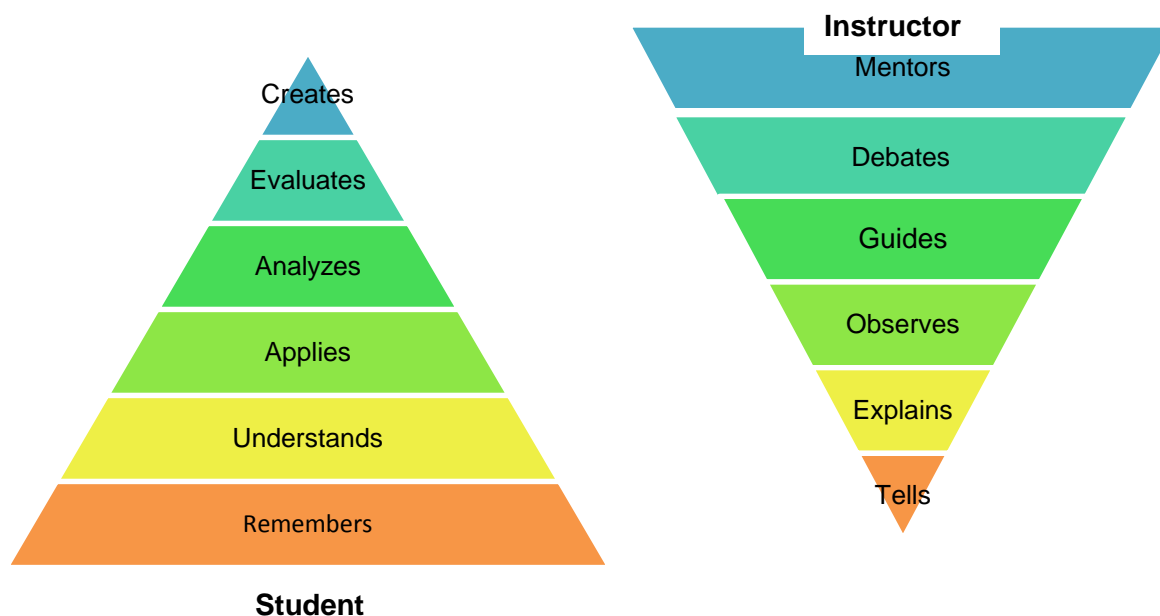
- o Incorporating high-quality informational text references and citations into the lessons
- Depth of teacher subject knowledge
- Students' possession of essential knowledge/skills/cognitive structures for the work of that discipline (EMR, EMT, AEMT, EMT-I, paramedic, PHRN, ECRN)
- Educator's skill in teaching so student are able to ascend the ladder of learning to the higher levels of the conceptual (cognitive) domain (synthesis, evaluation, creation)
- Capacity of supervisors to recognize/promote rigorous learning across disciplines

We have not always done an effective job at EMS instructional quality assurance or ensuring professional development of our faculty (see Danielson model below), and may need to improve in this area.

A System for Teacher Evaluation and Professional Growth adapted for EMS

The whole EMS education system

Quality Assurance

Periodic assessment of effectiveness by skilled evaluators

As required, specific evaluation of skills, improvement plans prn

Professional growth

Mentoring of instructors

Colleagial collaboration to improve practice

Instructional coaching

Teacher Evaluation and Development in the Common Core Era; ASCD Annual Conference; March 2014; The Danielson Group Accessed on line: www.danielsongroup.org/article.aspx?page=frameworkforteaching; 7-5-12.

Creates

Evaluates

Analyzes

Applies

Understands

Remembers

Student

Instructor

Mentors

Debates

Guides

Observes

Explains

Tells

Rommie Duckworth; www.romduck.com or www.rescuedigest.com

Our students must be able to problem solve and use critical thinking skills through experiential learning such as exploration activities, simulations, scenarios, evaluation of case studies, role playing, debates, reflective journaling, and/or student-led discussions, etc. Instructional methods/strategies must change

as the student gains mastery of conceptual concepts (see above) to lift them up to the highest levels of the cognitive domain. Lecture alone is usually ineffective in fostering the thinking skills necessary to practice well in the field (or to pass a rigorous summative assessment like the state or National Registry exam). If students are totally passive in the classroom (tourists not tour guides), they will not achieve enduring learning. They're just "renting space" not preparing to be "owners" of their learning.

Recommended reading:

Danielson, C. (December 2010/January 2011). Evaluations that help teachers learn. *The Effective Educator, _68_(4)*, 35-39

Danielson, C. (December 2012). Teacher evaluation; what's fair? What's effective? *Educational Leadership*, _70_(3), 32-37.

Illinois Exams compared to NR exams

Purpose of a summative test: To separate qualified individuals who can demonstrate adequate knowledge of the content areas important to safe and effective practice from those who do not meet this standard at the time they took the examination (CTS, 2012). Laxity in applying psychometric standards to testing increases the risk that an unqualified candidate will be awarded a credential or allowed to practice (CTS, 2012).

Points of comparison	Illinois	National Registry
Who writes the items?	Members of the EMS community who serve on Item Writing Committees convened by IDPH	Members of the EMS community who serve on Item Writing Committees convened by the NREMT.
Item writing committee composition	While the call is open to all EMS Systems, the committees typically have 10-15 EMS experts as members from throughout Illinois including lead instructors/educators, Regional EMSCs, and state regulators in addition to the psychometrician from CTS. The insight, experience and judgment of qualified professionals is extremely important to creating and validating questions for any fair and appropriate certification or licensure examination (CTS, 2012).	Typically have nine to ten EMS experts as members (physicians, state regulators, educators and providers).
Meeting schedules	They meet for 2 days at a time over a several month period to review, rewrite, and reconstruct drafted items.	They meet over a three-day period to review, rewrite and reconstruct drafted items.
Content and level of mastery to be tested; Inter-rater agreement	Consensus by the committee must be gained so that each item is generated from a blueprint that is mapped to objectives that are mapped to education standards (currently DOT curriculum). The blueprint is based on the judgment of experienced professionals in the field (CTS, 2012). Every question on a CTS examination must be directly related to the purpose of the examination. Whenever possible, test questions should assess the candidate's ability to apply relevant knowledge to real problems that arise in the practice of the profession rather than just recall of individual facts. Vary the difficulty of questions from easy to hard. A difficult question should require sophisticated reasoning or understanding of a complex subject. Do not write "trick" questions or items that depend on obscure information or concepts that would not be expected of a newly qualified professional (CTS, 2012).	Consensus by the committee must be gained so that each question is in direct reference to the tasks in the practice analysis that is created by experienced professionals in the field. With computer adaptive testing, "questions get more complex and challenging as the examinee processes through the test. Items are written to determine a candidate's ability to assess, prioritize, and apply cognitive concepts. We want to know how much they know in a given setting; can they use the information in a given setting." Trè Rodriguez, July 2014. All candidates will be challenged to the limit of their ability, so everyone taking the exam will think it was difficult.

Points of comparison	Illinois	National Registry
Science says…	Cognitive objectives that the test should measure should be based on education standards, a needs assessment, QI data, a practice analysis of highly critical concepts, or the educator's expert opinion. **Selecting testable material** Concepts to be tested must be • related to objective achievement from the education standards (map to standards); • **clinically relevant:** Items should be reflective of important concerns for practice based on **frequency of use or criticality** to the individual's scope of practice. Consider the consequences of not knowing. An item measures high criticality if lack of knowledge covered in the item could result in job performance errors that could result in harm to a patient. Avoid "So what?" items. • reflective of principles and ideas not generally known by those who have not been in an EMT or paramedic program; and • based on facts for which there is documented consensus among experts; and • directly related to the specific content listed in the blueprint and table of specifications.	
Key vs distracters	Each question must have exactly one correct answer. Common types of incorrect responses include: • Answers that are related to the situation and sound plausible to the unqualified candidate, but are incorrect. • Answers that depend on a common misconception or misunderstanding of the topic. • Statements that are true but are not relevant to the problem stated in the stem (CTS, 2012).	The correct answer (key) is the best answer; that each distractor option has some plausibility
Item references/citations	Each question is validated using course materials and references that should be familiar to qualified candidates (at least 3 and often 5 of the current textbooks for that discipline)	The answer can be found within commonly available EMS resources.
Item review before approval to include in the bank	Before a test question is ready for use in an examination, it must go through several stages of detailed content validity, editorial, sensitivity and psychometric review. A valid, fair test question may be refined several times as it moves from the initial idea of the item writer through these steps.	Items are reviewed for the appropriate reading level and to ensure no bias exists related to race, gender or ethnicity that could cause Differential Item Functioning (DIF).
Type of exam	**Computer based test (CBT)**: Candidate receives a fixed number of items. Determines ability based on the assumption that performance on a subset of the domain is generalizable to entire domain.	**Computer Adaptive Test (CAT) combined with Item Response Theory:** Each test is tailored to how the candidate is performing. Candidate can receive any number of items between the minimum and maximum number of items.
# Items EMT	150	Min 70; Max 120; # pilot items 10
# Items PM	150	Min 80; Max 150; # pilot items 20
Does the PM exam bank share any BLS questions from the EMT exam bank?	No	No
Are any BLS concepts tested on the paramedic exam?	Yes, within the context of care priorities that start with BLS and may evolve to ALS. Ex: Chest compressions and BLS airways prior to defibrillation, advanced airways, vascular access or drugs in a cardiac arrest. As Tre and I spoke, our approach	Only in the context of prioritizing care prior to initiating ALS interventions. Example: Ventilating with a BVM first before determining that an advanced airway is needed. (Trè Rodriguez, July 2014). One random BLS skill is

Points of comparison	Illinois	National Registry	
	to this is exactly the same between exams.	tested on the PM practical exam.	
Difficulty level assigned	Items are pre-rated by the item writing committees anticipating the number of candidates that are expected to answer the item correctly.	Items are pre-rated by the item writing committees anticipating the number of candidates that are expected to answer the item correctly.	
Statistical item analysis	Item analyses are reviewed after a critical mass of students have taken the exams to review question performance.		
Pass rates	Illinois exam	Illinois NR results 2013	2013 Ntl ave.
EMT 10/13-2/14	66%	71%	70%
PM 1-9/2013 on paper	584/702 83%	*68%	1st time: 73%
PM 10/13-3/14	166/366 45%		
PM April-early June/2014	52/137 38%		
Application fee EMT	$20 each attempt	$70 each attempt	
Application fee PM	$40 each attempt	$110.00 each attempt of the cognitive examination.	
Psychomotor exam	No state practical exam. Program psychomotor exams are accepted as skills verification.	The psychomotor section of the examination process currently consists of twelve (12) separate skills presented in a scenario-type format to approximate the abilities of the Paramedic (NRP) to function in the out-of-hospital setting. All skills have been developed in accordance with the 2009 National EMS Education Standards and Instructional Guidelines for EMT and Paramedic, and current AHA guidelines.	

Mr. Rodriquez's final comments were about the difference in results between accredited and non-accredited programs, "Accredited students tend to do better with a higher success rate".

*States below Illinois pass rate on the NT PM exam: Arkansas, District of Columbia, Indiana, Kentucky, Louisiana, Michigan, Missouri, Pennsylvania, Texas, & West Virginia. However, our N is not reported and it is unclear if our numbers reflected applicants from accredited programs. NR required that paramedic applicants that started training after Jan. 1, 2013 had to graduate from an accredited program to sit for the NR exam.

References:

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https://www.nremt.org/nremt/downloads/Newsletter_Summer_2014.pdf

Registry pass rates: http://www.nremt.org/nremt/downloads/2013_FirstTimePassRates.pdf
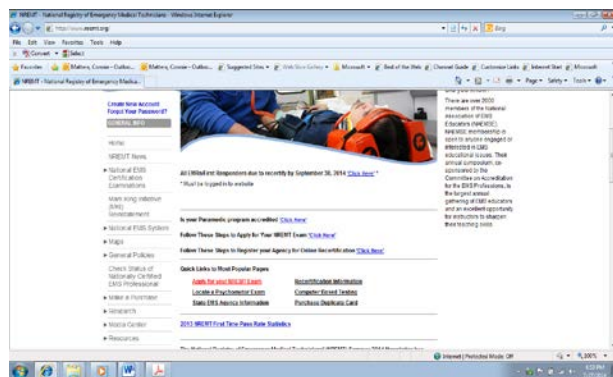
One distinction of a CAT is that it can better distinguish pass/fail status of people who are "on the line" because of its ability to ascertain individual trait ability.

CTS. (2012). Continental testing services (CTS) guidelines to write test questions for EMT-Paramedic exam. Unpublished guidelines given to item writing committee members.

OTHER NEWS:

NASEMSO publishes Interstate Compact for EMS Personnel Licensure for State Adoption

Purpose of the Project: This project has been a 20-month process to develop a model interstate compact for states' legislative use to solve the problem associated with day-to-day emergency deployment of EMS personnel across state boundaries. The draft Compact has been published and

Point of interest for Illinois:

Article III C. A home state's license authorizes an individual to practice in a remote state under the privilege to practice only if the home state:

1. Currently requires the use of the National Registry of Emergency Medical Technicians (NREMT) examination as a condition of issuing initial licenses at the EMT and paramedic levels;

Project Documents
- Final Draft of Interstate Compact for EMS Personnel Licensure (Feb. 18, 2014)
- Review of Final Draft for State EMS Directors and Invitees (Feb. 14, 2014)
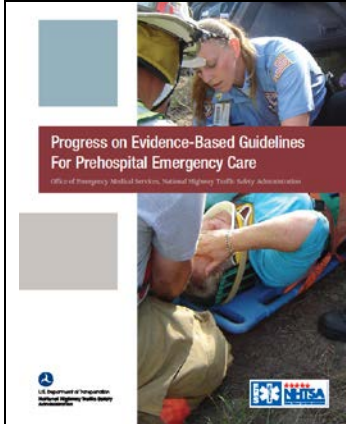
NASEMSO Executive Director **Dia Gainor** will present a webinar on **Sept. 16, 2014, 2:00-3:00 p.m. EDT**. She will provide an overview of the objectives, criteria, and plans for implementing this important opportunity.
Space is limited, so reserve your webinar seat now.

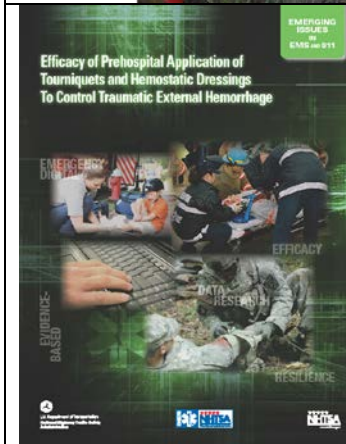|	
	After registering, you will receive a confirmation email containing information about joining the webinar. System requirements are: ▶ *PC-based attendees require:* Windows® 8, 7, Vista, XP or 2003 Server. ▶ *Mac®-based attendees require*: Mac OS® X 10.6 or newer. ▶ *Mobile attendees require*: iPhone®, iPad®, Android™ phone or Android tablet. See the NASEMSO website: www.nasemso.org for all kinds of breaking news impacting EMS – and therefore EMS educators.
Progress on Evidence-Based Guidelines For Prehospital Emergency Care	Since 2008, the National Highway Traffic Safety Administration (NHTSA) Office of Emergency Medical Services and the Emergency Medical Services for Children (EMSC) Program (Health Resources and Services Administration), have been working with EMS stakeholders to create and pilot test a model for developing and implementing evidence-based guidelines (EBGs) for prehospital emergency care. NHTSA has published the progress (Appendix A) of the project with the EMS community. To access full report go the NHTSA's website: www.ems.gov , or see the link on the Northwest Community EMS System website (www.nwcemss.org) under Committees and/or breaking news on the home page.
Efficacy of Prehospital Application of Tourniquets and Hemostatic Dressings To Control Traumatic External Hemorrhage	One of the first set of guidelines published under the above project. Very well done, cites great research. All educators should be familiar with this document so we are teaching the most up-to-date evidence-based care. To access full report go the NHTSA's website: www.ems.gov , or see the link on the Northwest Community EMS System website (www.nwcemss.org) under Committees and/or breaking news on the home page.
Best Practices IN EMERGENCY SERVICES — A GATHERING OF EAGLES	We can't all travel to the ***Gathering of Eagles The State of the Science*** conference ever year, but we can access the slide presentations and therefore glean some of the major points made by these transformational EMS leaders. These resources help EMS educators get and remain up to date. This article highlights some of the important information from the 2014 conference. See the link on the Northwest Community EMS System website (www.nwcemss.org) **To access Eagles presentations** from this and previous years Go to: www.gatheringofeagles.us **For additional information on the Eagles Conference, please contact** eagles@utsouthwestern.edu Tel. 800.688.8678, 214.648.3138 Fax 214.648.4804

	Establishing Transdisciplinary Professionalism for Improving Health Outcomes: Workshop Summary published by the National Academies of Sciences ==This is our future – let's be informed and start preparing now.== "Efforts to improve patient care and population health are traditional tenets of all the health professions, as is a focus on professionalism. But in a time of rapidly changing environments and evolving technologies, health professionals and those who train them are being challenged to work beyond their traditional comfort zones, often in teams. A "new professionalism" might be a mechanism for achieving improved health outcomes by applying a "transdisciplinary professionalism" throughout health care and wellness that emphasizes cross-disciplinary responsibilities and accountability. Transdisciplinary professionalism was defined by invited individual experts2 as *an approach to creating and carrying out a shared social contract that ensures multiple health disciplines, working in concert, are worthy of the trust of patients and the public.* This definition was based on the American Board of Medical Specialties definition of professionalism (ABMS, 2013)." It can be found at: www.nap.edu/catalog.php?record_id=18398 Educators can register with the National Academies Press for access to free PDF downloads of titles from the NATIONAL ACADEMY OF SCIENCES NATIONAL ACADEMY OF ENGINEERING INSTITUTE OF MEDICINE NATIONAL RESEARCH COUNCIL
	Active learning increases student performance in science, engineering, and mathematics More food for thought… "To test the hypothesis that lecturing maximizes learning and course performance, we metaanalyzed 225 studies that reported data on examination scores or failure rates when comparing student performance in undergraduate science, technology, engineering, and mathematics (STEM) courses under traditional lecturing versus active learning. The effect sizes indicate that on average, student performance on examinations and concept inventories increased by 0.47 SDs under active learning (n = 158 studies), and that the odds ratio for failing was 1.95 under traditional lecturing (n = 67 studies). These results indicate that ==average examination scores improved by about 6% in active learning sections, and that students in classes with traditional lecturing were 1.5 times more likely to fail than were students in classes with active learning."== Freeman, S. Eddy, S.L., McDonough, M., Smith, M.K., Okoroafor, N., Jordt, H., & Wenderoth, M.P. (2014). Active learning increases student performance in science, engineering, and mathematics. vol. 111 no. 23 > Scott Freeman, 8410–8415doi: 10.1073/pnas.1319030111. Accessed on line: http://www.pnas.org/content/111/23/8410
National Mobile Integrated Healthcare project – to include education components	Key EMS Leaders understand that there are many fragmented Community Paramedicine Programs throughout the country. Programs were created based on a local need and therefore designed and implemented locally. Some programs do well and some have faltered due to a lack of concise information. A few weeks ago, key EMS leaders and stakeholders in the Joint National EMS Leadership Forum (JNEMSLF) had an informal discussion in order to discuss the creation of a MIH Coalition that would meet in the fall of 2014 in order to: - develop and disseminate guidance and best practices to EMS organizations that wish to collaborate with the broader system of care to fill gaps in healthcare access and delivery. This guidance could include topics related to clinical practice, education, reimbursement, regulation, and familiarity with existing tools. - provide information on changes within healthcare and why these changes provide needs and opportunities for more integrated care - communicate context with other healthcare resources, regulatory frameworks, and projects. - establish a platform for ongoing sharing of experiences among organizations that have actively participated in MIH programs within their communities The ultimate goal is for creation of a toolkit for educators, administrators, community leaders. The goal is not to create rules or regulations but help how you could do it in your community and not, " this is what it should look like" All key stakeholders will be invited to the fall meeting.

Follow up notes:

Thanks to so many who participated in today's meeting. I am so sorry that ICEP could only accommodate 4 sites in the videoconference. When IDPH hosts the event we are able to include more.

Action agenda from today:
- Ask CTS if they can give us a breakdown of how the items are performing that are a carryover from the old bank (used prior to the transition to computer-based testing) as contrasted to how the newly written items are performing.
- See if it is possible to mirror our processes to those of the National Registry with respect to piloting several items in each exam that do not count towards the applicant's score, but are used to collect data on how it is performing before rolling it into the active test bank.
- Work with Jack to plan and schedule educator workshops around the state that will focus on the Danielson domains of teaching; curriculum development and design; creating and using lesson plans; writing goals and objectives; evaluation of faculty and students; and measurement of learning. These workshops would key off of and expand upon the content presented in the NAEMSE IC1 course that serves as the initial course for lead instructors. We will also include time at each workshop for networking and sharing creative ideas among participants.