Members

- Rachael Hagerman – SUNY Broome Community College, Chair*
- Mary Mawn* – Empire State College
- Ken Charuk – Empire State College
- Karen Pearson* – Fashion Institute of Technology
- Ryan McCab – Finger Lakes Community College
- Craig Capria – Nassau Community College
- Thomas Fernandez – Nassau Community College
- Joshua Altemoos – Student Assembly
- Phil Ortiz – SUNY System Administration Liaison
- Dan Knox – SUNY System Administration Liaison
- Carey Hatch – SUNY System Administration Liaison
Definition of a Virtual & Alternative Lab

• A lab offered anywhere except the traditional student laboratory classroom
  – Virtual Labs
    • Online Simulation
    • Publisher’s software
  – Alternative Labs
    • Purchased Kits
    • Utilization of household items
    • Alternative location (hospital or industrial site)
    • Alternative environment (park, yard, civic project)
4 Focus Areas Surrounding Virtual & Alternative Labs

• **Access**
  – Students seeking more fully-online options
  • Laboratory courses tend to be tied to the campus
    – Limitation for students who cannot travel to campus or attend during hours labs are offered

• **Transferability**
  – Multiple programs in Seamless Transfer specifically stated online labs would not be accepted for transfer

• **Resistance to Change**
  – Assumption that alternative lab = simulation
  – Assumption that simulation is inferior to classroom laboratory
    • Student laboratories often use old, out-dated methods and equipment

• **Communication**
  – Campuses are doing really unique and innovative things, but is largely unknown to SUNY as a while
Why Consider Virtual & Alternatives Labs at a System level?

• Increased access & flexibility for students
  – Those that cannot come to campus
  – Restrictions due to health
• Replication
• Exposure to techniques/principles not found in a student lab
• Alternative labs still provide ‘hands-on’ experience
• Cost
Goals Identified by FACT2

• Collect and document information on virtual labs and their current use within the SUNY System and higher education in general
• Raise the level of understanding of the use, effectiveness, and various modes of implementation of virtual labs among SUNY STEM faculty
• Establish mechanisms for SUNY STEM faculty to assess learning gained through virtual labs
• Establish quality standards for faculty to use when selecting or developing virtual labs
Targets Identified by FACT2

• A set of tools and frameworks for faculty to use when assessing credits earned with virtual labs
• A set of tools and frameworks for faculty to use when selecting or developing virtual labs
• A set of vetted and recommended virtual labs to align with seamless transfer courses
• A community of practice supporting STEM faculty in ongoing communication around the topic of virtual labs
Foci of The FACT2 Task Group

• Identification of Learners & Modalities
• Examination of Current Campus Practices
• Seamless Transfer Concerns
• Assessment of Student Learning
Identification of Learners & Modalities

• Traditional Students
• Non-Traditional Students
• Major
• Non-Major
• Non-Matriculated
• Seeking entrance into another undergraduate program
• Seeking entrance into another graduate program

• A lab offered anywhere except the traditional student laboratory classroom (find the list from the survey)
  – Virtual Labs
    • Online Simulation
    • Publisher’s software
  – Alternative Labs
    • Purchased Kits
    • Utilization of household items
    • Alternative location (hospital or industrial site)
    • Alternative environment (park, yard, civic project)
Instrument to Analyze Current Campus Practices Across SUNY

- **Survey Link**
  - http://goo.gl/forms/79zPONBafdzNudXj2

- To-date we have received 20 responses, from 15 different campuses
  - See Supplement #1
Challenges and Concerns Related to Seamless Transfer

• Faculty perspective:
  – Lack of definition of what an online lab is
    • Created working definition; categories
    • Developed at flow chart to determine whether a V&A lab should be acceptable for transfer
      – See Supplement #2
  – Safety in moving from online labs to a face-to-face setting
    • Attempting data collection
  – Clear assessment of Quality and student learning
  – Certain courses were too costly for an institution to develop
    • Hope to solve that by increasing number of V & A Labs

• Student perspective:
  – Limited access to required courses in Seamless Transfer
    • Both in the number of institutions offering the course and the physical location of the course
Assessment of Student Learning

• Virtual & Alternative Laboratories are an excellent solution, when they are done with quality
• Communicate what quality standards are for these courses
  – Slightly different standards than just an online course
• Working with COTE to develop OSCQR rubric specifically for online labs
  – Full listing of Rubric Categories see Supplement #3
Proposed Future Work in the Area of Virtual & Alternative Labs

- Enhanced Data Collection
- Collect Assessment Results
  - Assessment of SLO
  - Comparative Assessments
    - Only 40% teach the same course in both modalities
    - Only half of those perform comparative assessment
- Collect Examples of Assessment Practices
- Development COTE Community Group
  - Focused on Virtual & Alternative Labs
- OSCQR
Contact Information

Rachael Hagerman
SUNY Broome Community College
hagermanrm@sunybroome.edu
Survey Results as of 5/25/2016

Supplement #1
Role on Campus

Please indicate your role on campus: (20 responses)

- 50% Tenured Faculty Member
- 20% Tenured-Track Faculty Member
- 15% Nontenured Faculty Member
- 15% Other
Length of time teaching online

- Less than One Year: 1 Respondent
- 1 - 5 Years: 4 Respondents
- 6 - 10 Years: 9 Respondents
- 11 - 15 Years: 3 Respondents
- 16 - 20 Years: 3 Respondents
Field of Study

Field of study (select all) (20 responses)

- Biology: 6 (30%)
- Chemistry: 4 (20%)
- Computer Science: 0 (0%)
- Engineering: 1 (5%)
- Environment: 4 (20%)
- Medical/Health: 4 (20%)
- Physics: 4 (20%)
- Social Science: 2 (10%)
- Other: 4 (20%)
Types of Learners

What type of student participates in your alternative lab (select all that apply)?
(20 responses)

- Traditional students: 17 (85%)
- Non-traditional students: 17 (85%)
- Non-Major: 14 (70%)
- Non-Matriculated: 8 (40%)
- Seeking entry: 5 (25%)
- Unknown: 2 (10%)
SUNY Offerings

How is the alternative lab offered (select all that apply)? (20 responses)

- Online simulation: 14 (70%)
- Publisher's solution: 9 (45%)
- Purchased kit: 5 (25%)
- Utilization of...: 3 (15%)
- Alternative lab...: 1 (5%)
- Alternative e...: 4 (20%)
- Other: 6 (30%)
Orientation Requirement

Are students required to complete any type of orientation prior to the start of your alternative lab?
(20 responses)

- Yes: 60%
- No: 40%
Dual Modality Instructors

Do you teach the same course in both the alternative and traditional classroom environment?
(20 responses)

- Yes: 60%
- No: 40%
Comparative Assessments

Do you perform comparative assessments between modalities? (8 responses)
Willingness to Share Assessments

Do you have assessment methods specific to the alternative environment you would be willing to share with individuals thinking about developing an alternative lab?

(20 responses)

- Yes: 55%
- No: 45%
Interest in Community of Practitioners

Would you be interested in participating in a community of practice that focuses on quality alternative lab offerings within the SUNY System (listserv, web presence, annual conference, etc)?

(20 responses)

- Yes: 75%
- No: 25%
Challenges Faced in V&A Labs

• Yes. Our clinical laboratory technologies curriculum is a very focused. It is often hard to find materials that are specific to our field. Many of the online tools and software programs are geared toward life sciences or general medicine and would not meet our needs. We have also explored other options to create our own kits or software but we have not found appropriate suppliers, developers, etc. Safety and exposure to biological hazards is another major concern when considering alternative labs with at home kits.

• Yes. The opportunity to pilot different models.

• There is no substitute for a hands on lab. The problems with virtual labs is that it becomes disorganized and problematic to assess knowledge. Virtual labs are great supplements that reinforce the facilitation of knowledge.

• The course I teach has been developed by a committee of instructors. I am not part of the committee; therefore, I was not involved in development of the labs.
Challenges Faced in V&A Labs

- Definitely there are challenges. Particularly, students make unidentified mistakes in their lab protocol resulting in experiments that "just didn't work." They cannot identify where they went wrong, and neither can I (since I didn't see them perform the experiment).
- Only that students seem frequently to expect that the course will entail less work or time than a traditional course, so the attrition is rather high.
- The main challenge to me is that I am unable to guarantee that the students invest time and effort into the virtual laboratories. This primarily relates to the fact that I do not have much labor.
- Sure, as most of my offerings are online I am constantly creating, finding, evaluating and implementing new virtual experiences. In today’s digital environment these OERs come and go. What was great last term may have gone offline or glitched this term. You have to be ready at a moments notice to offer an alternative alternative! In fact this is an area I have researched for some time and have published several articles and chapters on the subject.
Challenges Faced in V&A Labs

• Yes. Our clinical laboratory technologies curriculum is a very focused. It is often hard to find materials that are specific to our field. Many of the online tools and software Yes, the need for a solution that allows instructors to build the lab environment, very costly hardware and application platform -staffing

• ESC has always been challenged by not having "physical" labs and I work at a distance from the science teachers. When I discovered virtual environments in about 2007, I saw them as a real boon to community and collaboration. I had to be my own tech support in this area. I would like to have others join me so that we can share the collaboration spaces. However, I don't want to be restricted in the work I do. Sometimes I have found tech support to not be that helpful if you are an innovator.

• Yes, Having alternative programs available, and those ending and needing to search out replacement sources
Challenges Faced in V&A Labs

• Yes, specifically I have had to make it a policy that students may not work together on labs because I have had incidences of cheating where students claim they were "working together". Unfortunately, that means each student must purchase their own lab kit.

• Of course! Some students do not think that they can learn through a virtual simulation. However with specific instructions and feedback most students find that they are able to transfer skills learned in a virtual simulation to practice. Also just completed my dissertation study on virtual simulations in nursing education.

• the expense of kits. Sometimes an item is substituted in a kit that I don't have.
Challenges Faced in V&A Labs

- cost and equipment needed at home
- Different technologies are challenging. Video instruction helps.
- Yes. Time is always an issue. It takes a large amount of time to develop and update activities for online courses with a lab component. All of the commercial online simulation lab products that I have test-driven are of poor quality and I believe my students would see them as "busy-work" and find all the "clicking" as irritating.
- The only difficulties is trying to assign segments of documentaries that are not available online.
Flow Chart for Transfer Credits

Supplement #2
Quality Rubric Categories

Supplement #3
I. Understanding the Methods & Tools in the Laboratory: a full explanation of how the virtual/alternative lab is representing the same theory principles and theories as a traditional lab

II. Presence of a course equivalency rubric: comparing the traditional and V&A environment
   – Provides evidence that the course is meeting the same SLO as the traditional format

III. Instructions on how to operate/perform/document results in the V&A environment
   – Can include proprietary instructions, but also should include:
     • Platform-specific indicator
     • FAQ
     • Explicit documentation of all help desk information
     • Step-by-step instructors on operating the V&A lab
IV. Evidence of Course information folder that indicates
   – Modality
   – All required equipment
   – Syllabus
   – Relationship to the lecture course (is it combined with the lecture for one grade or is it a stand-alone grade)

V. Evidence of Instructional Design evaluation

VI. Evidence of regular and rigorous assessment of modality along with SLO

VII. Accessibility

VIII. Evidence of student input & evaluation on the course throughout the offering