Nursing Performance Exams
Using
Video Assisted Peer Learning

Contact Information

Leigh Goldstein, PhD, RN, ANP-BC
Director of Learning Enhancement and Academic Progress Center
Clinical Assistant Professor in Clinical Nursing

1710 Red River

Austin, Texas 78712

USA

512 471-7997

lgoldstein@mail.nur.utexas.ed

LEAP Center

A little about me –

- Born in Arizona
- 28 years in nursing
  - Medical/Surgical
  - Adult Heath
  - Oncology
- Nursing Education
  - 18 years
- Nurse Practitioner
  - Adult Heath
  - Palliative/Hospice Care

Canyon De Chelly Arizona

Background

Started teaching at the University of Texas School of Nursing in 2007.

In 2015 became the facilitator for all undergraduate clinical nursing skills classes.

Background

My personal observations:

- High achievers
- Academically competitive
- High baseline anxiety
- YOUNG average age
  - Nursing 1st semester average age
    - 19-21
- Little adult life experience.
  - Single
  - No children
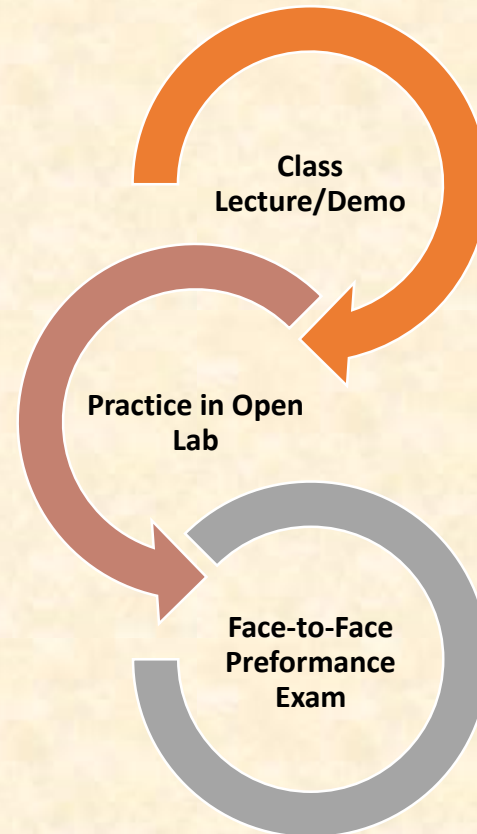 - No professional work experience

Background

__Traditional Technical Skills Performance Exam Testing__

- Attend class for short lecture, instructor demonstrates the skill.

- Students directed to practice skill in open labs.

- Testing by instructor direct observation while skill performed

Class Lecture/Demo

Practice in Open Lab

Face-to-Face Preformance Exam

Challenges of Traditional Performance Exams

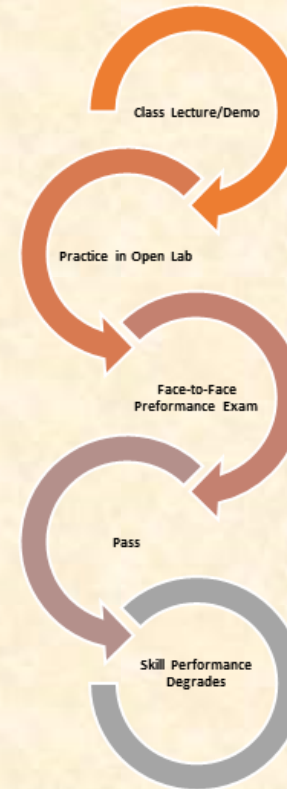### Student Challenges

- Extreme levels of stress

- Lack of control

- Psychosomatic conditions
    – Nausea & Vomiting
    – Syncopal Episodes
    – Anorexia
    – Insomnia
    – Hypoglycemia

- Stress induced hormones
    – Epinephrine
    – Norepinephrine
    – Cortisol

Challenges of Traditional Performance Exams

Teaching Challenges

- Students learn a skill in class then are only motivated to practice **just** before the exam to pass.

- Decreased opportunities for students to practice in the clinical setting.

- Student skill performance ability degrades quickly after testing.

Class Lecture/Demo

Practice in Open Lab

Face-to-Face
Preformance Exam

Pass

Skill Performance
Degrades

Challenges of Traditional Performance Exams

Testing Challenges

- Poor interrater reliability
  - Different instructors
  - Different instructor practice areas (Adult, child, mental)
  - Instructor fatigue
  - Instructor bias, testing guilt, and student sympathy
- Some skills tested had high failure rates
  - Example: Urinary Catheter Placement
- High failure rates increase burden on instructors & facilities
  - Retesting failed skills
  - Retesting with worse interrater reliability
  - Poor grade grievance defense
  - Lack of student accountability and responsibility to master skills

Getting Started

$ Awarded $50,000 intramural education technology grant.

🔍 Assessed existing infrastructure.

🚩 Set up testing lab for basic nursing skills class.

Recruit Faculty – Most Challenging Part

Development of Nursing Performance Exams Using Video Assisted Peer Learning

Goals of the Project

1. Develop a more student-centered method of instruction and evaluation.

2. Remove instructor "intimidation factor".

3. Improve exam interrater reliability and consistency.

4. Move away from a "passing an exam" to a "learning & performing skills competently" focus.

5. Increase student self-control, accountability, and responsibility.

6. Reduce student skill performance degradation.

The Use of Triangulated Video

- Removes the physical presence of instructor.

- Allows critical visual examination and evaluation of skill performance from multiple angles.

- Allows annotated constructive feedback with video time stamps.

- Visual focus for discussion with peers on skill performance.

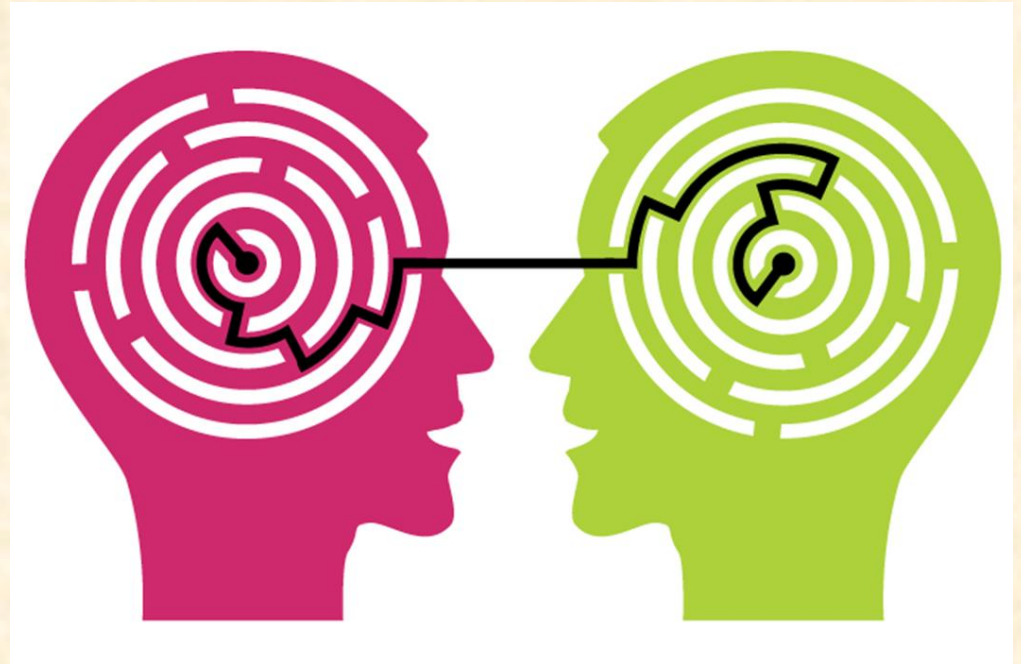Sim Lab A/V Floorplan

Scott Hudson, MSN, RN

The Use of Triangulated Video
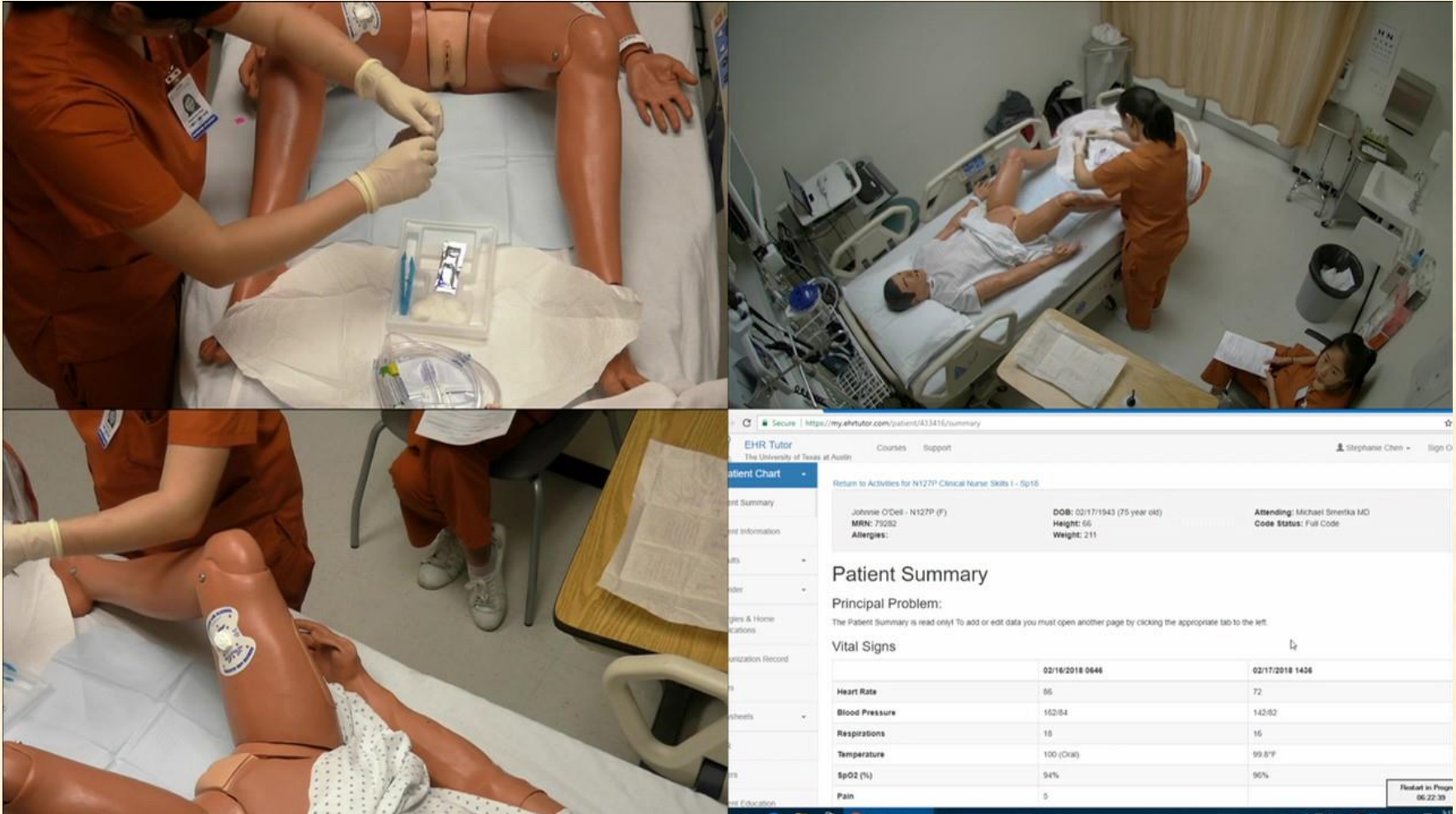
Student-Centered Components

1. Stress & Anxiety Reduction
2. Self-confidence
3. Control
4. Accountability
5. Communication
6. Evaluation
7. Giving and receiving feedback

Student-Centered Components

- Provides safe testing environment without intimidating instructor presence. **(1,2,3,4)**

- Student-initiated deliberate skills practice. **(1,2,3,4)**

- Students choose the video exam version they submit. **(2,3)**

- Receive comprehensive and constructive feedback with time stamps. **(2,4,5,6,7)**

- Students are held accountable for their own and their peer's performance. **(4,5,6,7)**

- Stimulates peer-learning discussion about skill performance. **(5,6,7)**

Improving Interrater Reliability & Consistency

- All instructors & teaching assistants (TA) teach skill from the same lesson plan.

- Instructors and/or (TA) grade video submissions.
  - Based on standardized rubric.
  - Instructors verify all new (< 1yr) TA graded failures

- Standardized plan for video exam failures
  - Exam 1 (Graded by instructor or TA)
  - Exam 2 (Graded by instructor only)
  - Face-to-face Exam (2 instructors' grade, student failure=failed class)

Video Performance Exam Learning Pyramid

Lecture 5% - Short in-class lecture by faculty.

Reading 10% - Students have pre-class reading assignments with a pre-class quiz over the information.

Audio Visual 20% - Students watch prep videos for educational demonstration. Students are given preformance grading criteria, then must observe and critique their partner during the VPE.

Demonstration 30% - Short demonstration by faculty then students practice and return-demonstrate the skill during class and in open lab. partner.

Discussion 50% - Some discussion in class, between testing, partners discuss their performance while reviewing videos for mistakes and areas to improve. Partners may stop the exam and restart at anytime if mistake occurs.

Practice by Doing 75% - VPE process involves repetition until pass worthy version is achieved. This happens over a period of weeks while student partners go through testing process.

Teaching Others 90% - During observation partners teach each other when a deviation from the performance criteria occurs. This involves a cyclic process between visual observation, demonstration, discussion, practice, and constructive feedback.

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Theoretical Base for methods

Kolb –

Experiential Learning

4-Stage Learning Cycle

   Feel & Watch

   Think & Watch

   Think & Do

   Feel & Do
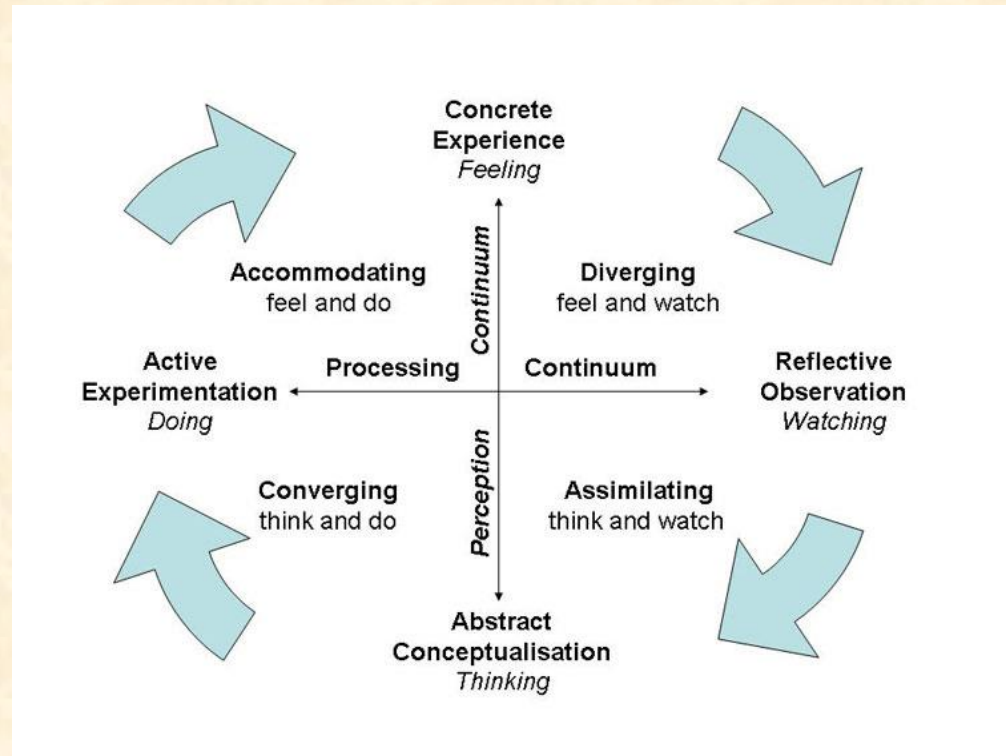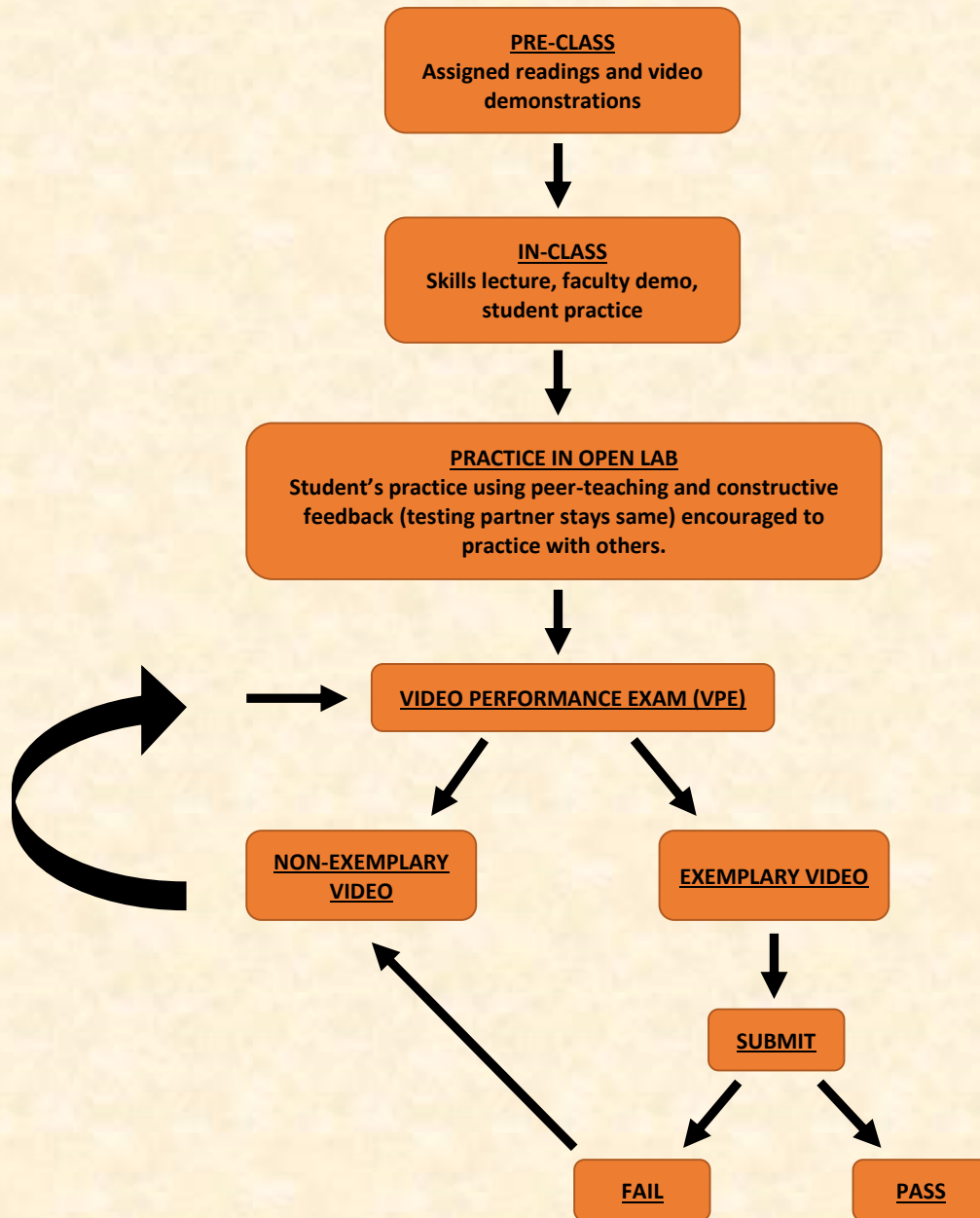
Muscle Memory

Student Mastery

Secondary focus

Social Learning

Peer Accountability

Video Performance Exam (VPE) Procedure Model

PRE-CLASS
Assigned readings and video demonstrations

↓

IN-CLASS
Skills lecture, faculty demo, student practice

↓

PRACTICE IN OPEN LAB
Student's practice using peer-teaching and constructive feedback (testing partner stays same) encouraged to practice with others.

↓

VIDEO PERFORMANCE EXAM (VPE)

NON-EXEMPLARY VIDEO

EXEMPLARY VIDEO

↓

SUBMIT

FAIL

PASS

Experiential Learning

Feel & Watch

Think & Watch

Think & Do

Feel & Do

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Student Control, Accountability, & Responsibility

- <u>Students decide:</u>
  - When to practice
  - How much to practice
  - Which video to submit
- <u>Students allowed to:</u>
  - Have repeated testing attempts
  - Peer evaluation
  - Several weeks to test
- <u>Students **not** allowed to:</u>
  - Switch partners mid-exam
  - Monopolize testing spots
  - See grading criteria while testing

Yes, we <u>ARE</u> saving you from yourselves!

Reducing Skill Performance Degradation

<u>Student-initiated deliberate skills practice</u>

More total practice hours

+

More practice over time

+

Repetitive testing and evaluation

=

Student success

Sample

Table 1. Demographics	Fall 2015 Pre-Assessment	Fall 2015 Post-Assessment	Spring 2016 Pre-Assessment	Spring 2016 Post-Assessment
Test Type				
F2F	24	21	0	0
Video	14	12	99	37
Grade Level				
Sophomore II	N/A	N/A	49(49%)	20(54%)
Junior I	38(100%)	33(100%)	50(51%)	17(46%)
Gender				
Male	3(8%)	3(9%)	8(8%)	0
Female	35(92%)	30(91%)	91(92%)	37(100%)
Age Category	N=36	N=33	N=99	N=37
19-20	29(80%)	22(67%)	64(66%)	60(60%)
21-22	7(19%)	10(30%)	26(26%)	10(27%)
23-24	0	0	3(3%)	1(3%)
25 +	2(1%)	0	6(5%)	4(10%)
No Reply	0	1(3%)	N/A	N/A

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Methods

- The first video performance exam was conducted in the N127P Clinical Nursing Skills Class in the Fall 2015.
- The new exam process was considered a course improvement project and was not required to obtain IRB approval by the university.
- The control group (N/24) was larger than the experimental group (N/14) due to several instructors' reluctance to participate.
- Not all control students were given and/or agreed to fill out the survey.
- The first exam skill tested was Medication Administration.

Methods

Design

- Pre-test, post-test approach to compare stress and anxiety levels of students being tested using both face to face and video methods using the Westside Test Anxiety Scale Driscoll R (2007) .

- Pre-test - demographic information, closed-ended questions
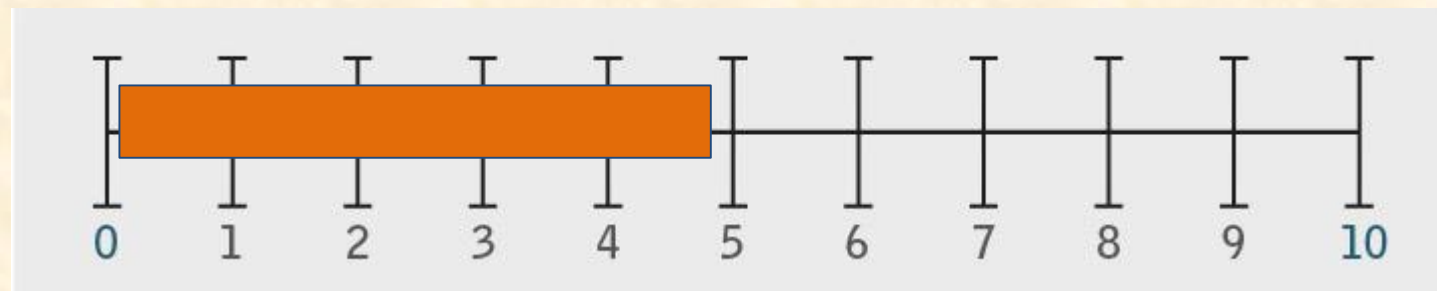
- Post-test - qualitative focused

Self-reported Pre-test Anxiety F15

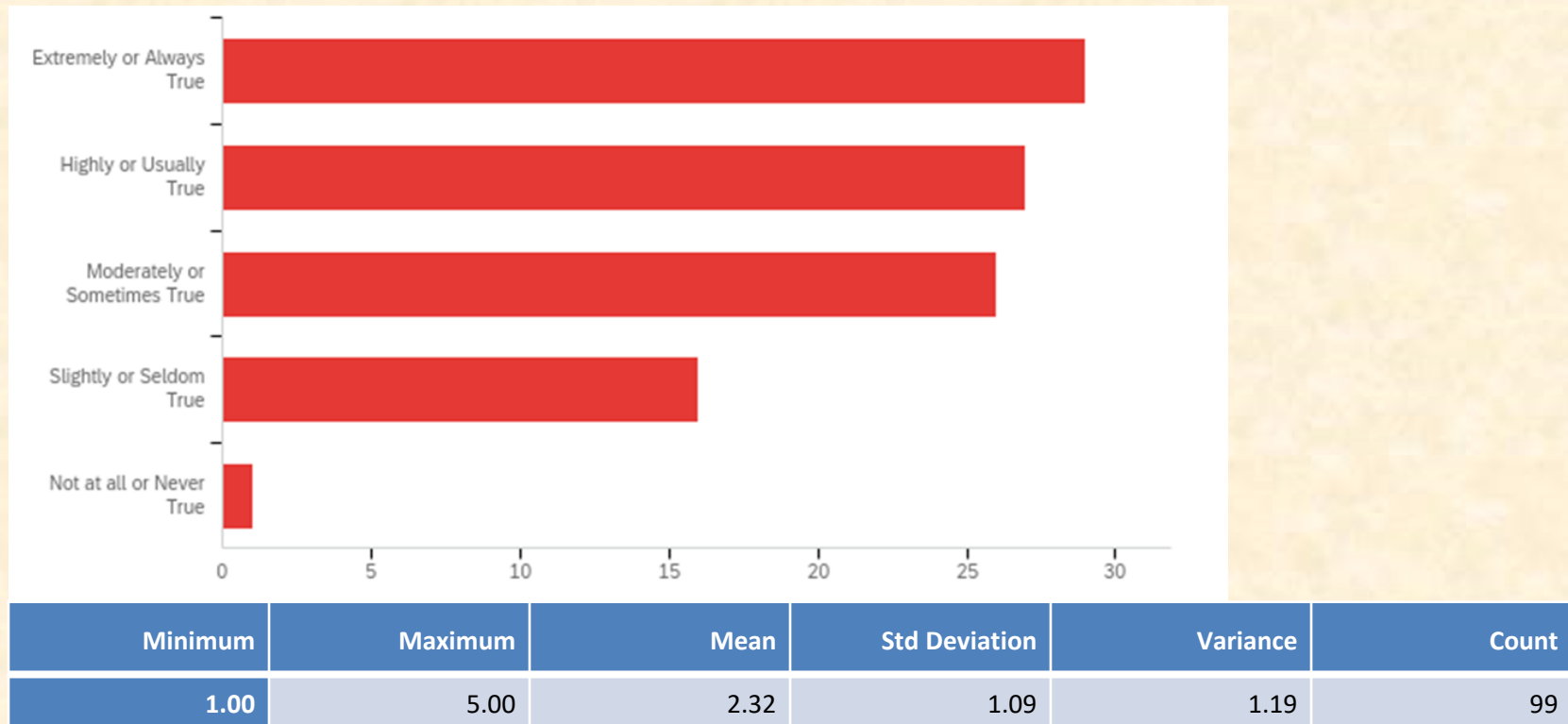## Face-to-face Performance Examination
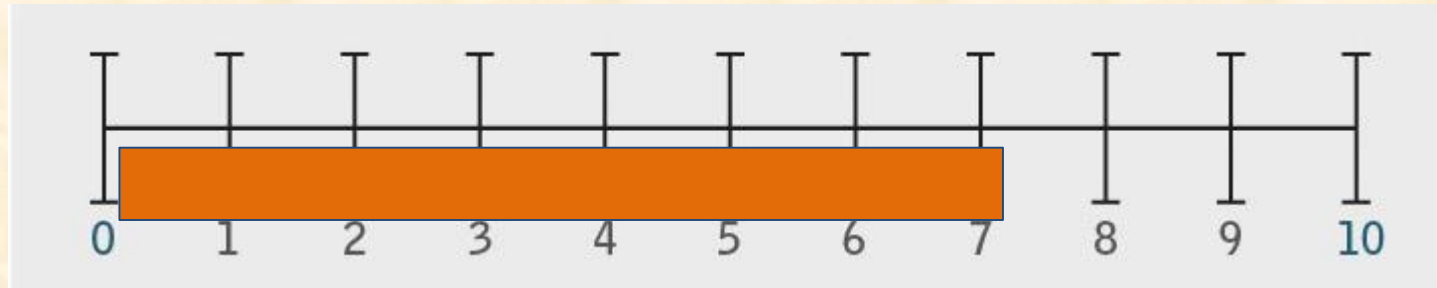

Video Performance Examination

Selected Pre-Test Anxiety Results using the Westside Test Anxiety Scale

When I study, I worry that I will not remember the material on the exam.

Minimum	Maximum	Mean	Std Deviation	Variance	Count
1.00	5.00	2.32	1.09	1.19	99

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Selected Pre-Test Anxiety Results using the Westside Test Anxiety Scale

During important exams, I think that I am doing awful or that I may fail.

Minimum	Maximum	Mean	Std Deviation	Variance	Count
1.00	5.00	2.94	1.04	1.09	99
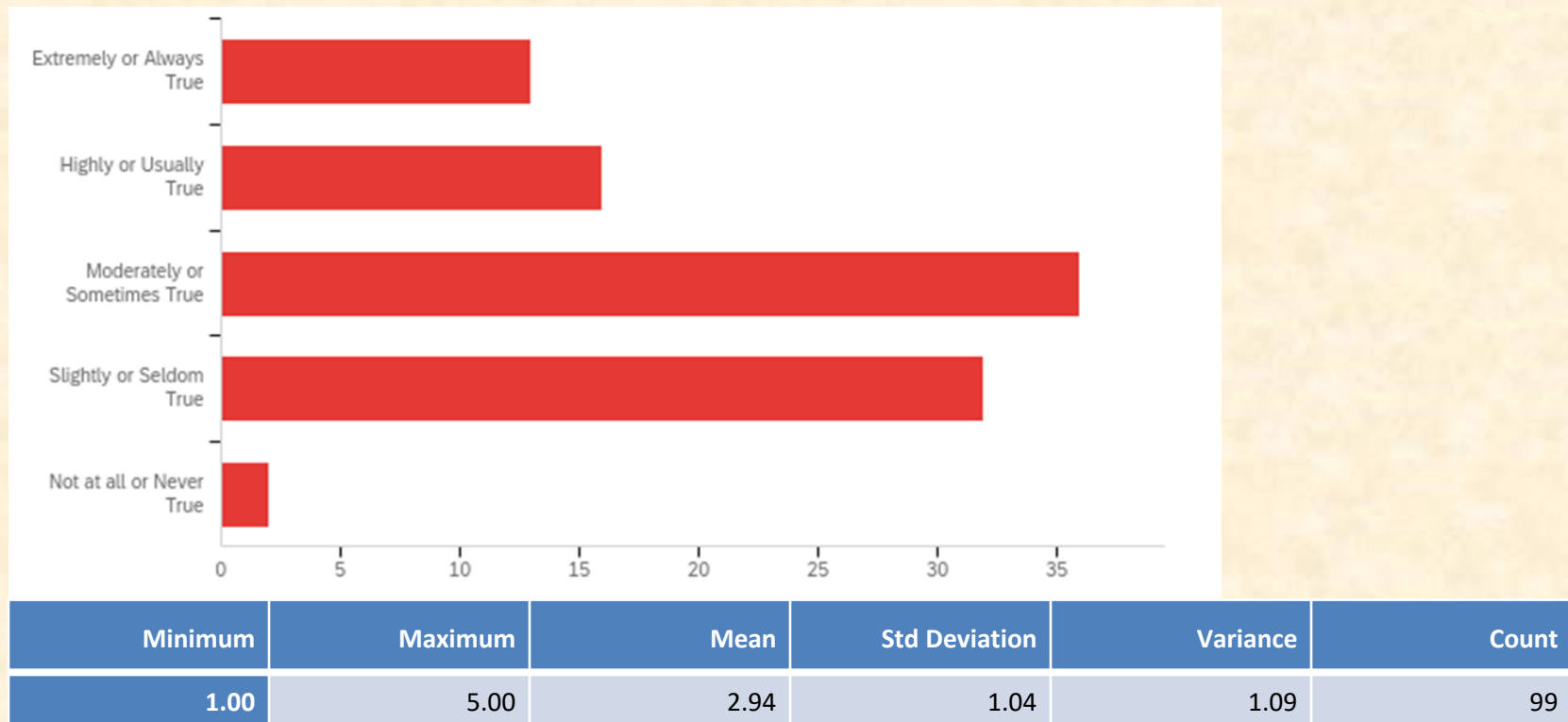
Pre-Assessment
Comfort with Testing Processes

Question	Strongly Disagree		Disagree		Neither Agree nor Disagree		Agree		Strongly Agree		Total
I am comfortable practicing new skills in front of my instructor.	1.01%	1	17.17%	17	14.14%	14	47.47%	47	20.20%	20	99
I am comfortable performing new skills in front of my instructor for a GRADE.	21.21%	21	34.34%	34	21.21%	21	21.21%	21	2.02%	2	99
I am comfortable practicing skills with a student partner.	0.00%	0	0.00%	0	4.04%	4	37.37%	37	58.59%	58	99
I would be comfortable with video recording a skill for a grade.	0.00%	0	3.03%	3	13.13%	13	45.45%	45	38.38%	38	99

Results

How prepared did you feel for the performance exam?

#	Answer	Count
5	Very Strong	27
4	Strong	52
3	Average	16
2	Weak	0
1	Very Weak	1
	Total	96

Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
How prepared did you feel for the performance exam?	1.00	5.00	4.08	0.73	0.53	96

Results

Now that you have had the exam, thinking back would you prepare:

#	Answer	Count
1	None it was just right	34
2	A Little More	46
3	Some more	10
4	A Lot More	3
5	Less, I over prepared	3
	Total	96

Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
Now that you have had the exam, thinking back would you prepare	1.00	5.00	1.91	0.93	0.86	96

My Favorite Feedback Comments

What did you like the least about the video performance exam?

- False sense of security in preparation, I needed more

- The need to be perfect.

- The Manikins are not real.

- That the instructor is able to rewatch it to catch mistakes

Video Performance Examination

Positive Themes
- Reduced Stress
- Ability to repeat
- Peer Review
- Self Confidence

Negative Themes
- Noise
- Supplies
- Time

Video Testing and Anxiety

"Despite no professor there, I was still nervous"

94% indicated some degree of anxiety at the beginning
- 32% comfortable right after beginning
- Additional 45% after 1 take
- By 3rd attempt 90% felt comfortable

External factors (n=26)
- Noise (26%)
- Supplies (23%)
- Technical problems (12%)
- None (45%)

55% of F2F examinations reported anxiety related to environment of room and supplies

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"What did you like the most about the video performance exam?"

Qualitative themes and their connection to anxiety
- Reduced stress
- Ability to repeat
- Peer review
- Self confidence

Ability to repeat

"I could start the exam when I felt prepared and that I was able to stop and redo it at anytime. It not only gives students more autonomy with their performance...but also instill more confidence within us"
(n=25/41)

Learn from mistakes

Repetition enhances retention of knowledge

Autonomy

Reduced stress

"I felt comfortable and not stressed"
(n=20/41)

Low stress environment without faculty present

- Comfortable with peer

Could make mistakes and start over

- Peer accountable to watch for mistakes

(Driscoll, 2007; Gibson, 2014; Khalaila, 2015)

Peer Review

"I ...thought that the responsibility to catch mistakes as the partner was a great learning experience"

(n=7/41)

Less stressful than being with a professor

Accountable to watch for mistakes

Build up confidence

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Self Confidence

"I was ... able to feel more confident in my skills because of the extra practice"
(n=6/41)

Repetition, increased competency and confidence in skill

Peer facilitated confidence

Outcomes of video performance testing

"How satisfied are you with the video performance exam as a testing method?"

- 100% (n=37) agreed "somewhat satisfied" or "extremely satisfied"

Students feel more competent in the clinical setting

- 36/37 indicated feeling competent
  - 51% of respondents felt "extremely competent"

Discussion

The New Normal

- Exams have been fully integrated into the curriculum
- N127P Clinical Nursing Skills I
  - Medication administration
  - Urinary catheter insertion
- N157P Clinical Nursing Skills II
  - IV Terapy

Next Steps

- Determine if anxiety reduction has been sustained.
- New data collection with demographically similar control group.
- Study patterns of learning.
- Study patterns of mistakes.

Resources

Chernomas, W. M. & Shapiro, C. (2013). Stress, depression, and anxiety among undergraduate nursing students. *International Journal of Nursing Education Scholarship,* 10(1), 255-266. doi: 10.1515/ijnes-2012-0032

Dearnley, C. A., Meddings, F. S. (2007). Student self-assessment and its impact on learning – a pilot study. *Nurse Educator Today*, 27(4), 333-340. doi:10.1016/j.nedt.2006.05.014

Driscoll R (2007). Westside test anxiety scale validation. Education Resources Information center

Gibson, H. A. (2014). A conceptual view of test anxiety. *Nursing Forum,* 49(4), 267-277. doi: 10.1111/nuf.12069

Goldsmith, M., Stewart, L. & Ferguson, L. (2006). Peer learning partnership: An innovative strategy to enhance skill acquisition in nursing students. *Nurse Education Today*, 26(2), 123-130. doi:10.1016/j.nedt.2005.08.001

Graf, M. A. (1993). Videotaping return demonstrations. *Nurse Educator,* 18(4), 29-32.

Hill, R., Hooper, C., & Wahl, S. (2000). Look, learn, and be satisfied: Video playback as a learning strategy to improve clinical skills performance. *Journal for Nurses in Staff Development*, 16(5), 232-239. doi: 10.1097/00124645-200009000-00009

Khalaila, R. (2015). The relationship between academic self-concept, intrinsic motivation, test anxiety, and academic achievement among nursing students: Mediating and moderating effects. *Nurse Education Today,* 35(1), 432-438. doi: 10.1016/j.nedt.2014.11.0010260-6917

Mir M. A., Evans R. W., Marshall R. J., Newcombe R. G., & Hayes T. M. (1989). The use of video recording of medical postgraduates in improving clinical skills. *Medical Education,* 23(1), 276-281.

Raymond D. D. & Dowrick P. W. (1993). Affective responses to seeing oneself for the first time on unedited videotape. *Counselling Psychology Quarterly*, 6(3), 193-200.

Secomb, J. (2008). A system review of peer teaching and learning in clinical education. *Journal of Clinical Nursing*, 17(1), 2793-2795.

Winters, J., Hauck, B., Riggs, J. C., Clawson, J., Collins, J. (2003). Use of videotaping to assess competencies and course outcomes. *Journal of Nursing Education.* 42(10), 472-479.

Yoo, M. S., Son, Y. J., Kim, Y. S., & Park, J. H. (2009). Video-based self-assessment: Implementation and evaluation in an undergraduate nursing course. *Nurse Education Today*, 29(6), 585-589. doi: 10.1016/j.nedt.2008.12.008

Yoo, M. S., Yoo, I. Y., & Lee, H. (2010). Nursing students' self-evaluation using a video recording of foley catheterization: Effects on students' competence, communication skills, and learning motivation. *The Journal of Nursing Education*, 49(7), 402-405. doi: 10.3928/01484834-20100331-03