

Faculty Innovator Grant 2011
Center for Learning and Teaching

Final Report Form

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Project Title: (10 words or less)	Seeing is Believing: Teaching Infection Control to Nursing Students

Other faculty:

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Faculty Innovator Grant 2011
Center for Learning and Teaching

Final Report Form

1. Describe the specific teaching and learning issues being addressed by the proposal.

The purpose of this educational strategy is to deliver necessary infection control content to nursing students using computer based learning then reinforce the content by providing visualization of the HAI spread as the students care for “patients” during their weekly lab experience.

2. Describe the revised specific teaching and learning issues being addressed by the proposal (if applicable):

No change

3. Describe the development activities involved addressing the learning or teaching issue.

- Nursing faculty members created converted lecture content into 3 PowerPoint presentations that would be converted to computer based learning activities. The instructional design team developed a series of three computer-based instructional (CBI) modules to be uploaded to the University’s Virtual Hospital. The lessons consisted of a knowledge-based foundational module, and interactive skilled-based hand washing and personal protective equipment modules.
- The second step of the process was designed to transfer didactic knowledge to the lab setting. The infection control simulation used a non-toxic biosphere created specifically for use in our lab setting. The substance is invisible to the naked eye, is easily transmittable, and fluoresces under ultra-violet light.

The biosphere was "planted" on the mannequins and was spread by the students as they cared for the patient. Patient care includes demonstration of proper hand hygiene, use of personal protective equipment, and a dressing change. At the end of the lab scenario, the faculty used the UV light to demonstrate the spread of the simulated infectious disease (SID) in the patient's cubicle, the PPE, and the student.

Final Report Form

4. Describe the learning outcomes attained by the project.

The overarching outcome of the project is that pre-licensure nursing students will understand how pathogens can be transmitted to patients and health care providers in the health care setting.

Students will demonstrate understanding of infection control principles by:

- Scoring 80% or higher on a module post test that evaluates student's knowledge about minimizing transmission of pathogens.

All students reached this threshold prior to coming to the lab.

- Demonstrating application of infection control procedures in the lab setting.

The students provided overwhelmingly positive comments about this project and its impact on their learning.

Quantitative: On a 1(low) to 5 (high) scale the students' ratings for this teaching methodology follow:

The CBIs were an effective teaching method to prepare me for the lab experience. **4.53**

The lab simulation was designed for my specific level of knowledge and skills. **4.48**

Qualitative comments included the following:

"I feel so dirty- can I wash my hands?"

This is one of the best ways of learning- this picture was worth more than a thousand words!"

It was phenomenal- I was so surprised!"

"WOW!" "SCARY!" Awesome" Enlightening" "Eye opening"

5. Describe unexpected outcomes, if any.

none

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Center for Learning and Teaching

Final Report Form

6. Describe the impact of the completed project on your colleagues, department, college, or community.

We have presented the UV light portion of this project at a national conference (NLN Technology and Simulation Conference) and at the Virginia Patient Safety Summit. The use of the UV light technology has also been spot-lighted in the SoN Alumni magazine and the Student Nurse magazine.

Since then the Dental Hygiene faculty have inquired about the biosphere use. Additionally 2 local hospitals are interested in using this technology with staff.

The FIG team, including the instructional designer, is preparing a manuscript to be submitted to Nursing Education Perspectives this spring.

7. Describe how the project can be a model, template, or prototype for use by other instructors.

These CBT modules and the UV light can be used in any program that needs to consider infection control. This goes beyond the Health Sciences courses and could include education and the spread of germs in the classroom.

8. Describe the technology used to help address the issues described in the proposal.

This project combined the use of an aural/visual modality in order to stimulate cognitively learning the hand washing steps, to an aural/visual/tactile modality during the CBI simulation to build muscle memory, and finally completing the transition with a kinesthetic hands-on practical application in the clinic. The UV light and biosphere demonstration allowed students to see the spread of simulated pathogens which reinforced the CBI content.

9. Describe products, if any, that are a result of the project.

none

10. Describe the future plans for this project, if any.

The use of the UV light technology implementation is being planned in the healthcare setting. The use of some or all of the CBIs could be implemented in other courses in the health sciences and education curricula.

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Center for Learning and Teaching

Final Report Form

11. Attach a financial report with updated Budget Plan Matrix.

Final Budget Matrix

Budget Item (equipment, personnel, software, etc.)	Qty	Total Cost	Source of Funds	
			Amount from FIG	Amount from Other Source
Biosphere	1	1200	1200	0
UV Lights / batteries	4	100	100	0
Lab supplies for simulation		250	250	0
Personnel Salary (Wiles, Rose, Curry- Lourenco)		950	950	0