Bridging the Gap between Knowledge and Practice:

Incorporating the Use of Simulators in Teaching Medical Assisting

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Learning Objectives

- **Recall** the benefits of simulation and simulators.
- **Relate** the use of simulators to learning theories and current research.
- View the **use** of a computer simulation.
- Consider techniques for **integrating** computer simulation into your educational program.
WHAT ARE SIMULATIONS/SIMULATORS?

- Simulation is the imitation of an act or process

- Simulator is a device that replicates an experience
  - Simulations are not new.
  - Simulations help us understand complex issues.
  - Simulations provide real-world experiences.
SIMULATION --- Uses/Types

NASA Astronaut Training

Pilot Training

Military Training

Physician Training
Simulators Stimulate the Senses

Adults remember approximately:

- 10% of what we see
- 65% of what we see and hear
- 80% of what we see, hear, and do
Educational conditions under which a student is most likely to learn.” – Stewart & Felicetti (1992)

VAK: Refers to three main sensory receptors to process information....

- Visual
- Auditory
- Kinesthetic
What I hear, I forgot:
What I see, I remember;
What I do, I understand

Chinese Proverb  451 BC

Simulators tap into visual, auditory and tactile (kinesthetic) learning modalities*
Simulators --- Bloom’s Taxonomy

- Remembering
- Understanding
- Applying

- Analyzing
- Evaluating
- Creating

Simulation Promotes the Use of Higher Order Thinking Skills
Simulation --- Higher Order Thinking

- Involves transforming ideas and information (interpretation).

- Allows students to solve problems by engaging in the construction of knowledge.

- Teachers must create environments and activities that provide opportunities for students to engage in higher-order thinking.
Medical errors kill as many as 98,000 people annually. (IOM)

Human errors extend to every health care setting, including out-patient clinics, retail pharmacies, nursing homes, and home care.

One recommendation to reduce human error as noted in this project .......... simulation training

Patient Safety through Simulation Research http://www.ahrq.gov/qual/simulproj.htm
Interaction is associated with learning achievement and retention of knowledge.

Participants learned faster and had better attitudes when they used an interactive instructional environment.

Knowles’ Theory of Adult Learners  1970s

1. As they mature, adults prefer self-direction.
2. Adults’ experiences are a rich resource for learning.
3. Adults are aware of learning needs based on real-life events.
4. Adults are competency-based learners.
Simulators Get Folks Moving

Monday, March 23, 2009

BVM sisters go 'whee!' for Wii
Video games are seen as beneficial -- physically and emotionally -- for elderly people
BY MARY NEVANS-PEDERSON TH STAFF WRITER

Far from the crowded clatter of traditional bowling lanes, a group of elderly nuns "bowl" just about every day. Their form is less than perfect, but their enthusiasm can rival that of league teams at a tournament.

In fact, the Sisters of Charity of the Blessed Virgin Mary at Mount Carmel's Caritas Center are so enthused about their new pastime that they might organize a bowling tournament between teams of sisters.

The nuns and many other seniors living in supported facilities are learning the benefits of Nintendo Wii video-game systems. Originally created for video gamers to play virtual sports, the systems are being incorporated into recreation and therapy programs in a broad range of care facilities.
## Simulation and Instruction

<table>
<thead>
<tr>
<th>Current Model</th>
<th>Net Geners</th>
</tr>
</thead>
<tbody>
<tr>
<td>The educational model used today.</td>
<td>...but this does not work for the student of the net generation</td>
</tr>
<tr>
<td>◦ Revolves around the instructor.</td>
<td>◦ <strong>Net Geners</strong> don’t operate in a sequential way:</td>
</tr>
<tr>
<td>◦ One-size-fits-all model.</td>
<td>◦ Use keywords in Google, hypertext</td>
</tr>
<tr>
<td>◦ One way lecture.</td>
<td>◦ Click, cut and paste</td>
</tr>
<tr>
<td>The student, working alone, is expected to absorb the delivered information.</td>
<td>◦ New video game—jump right in. Read directions only if problems develop</td>
</tr>
</tbody>
</table>
They want a choice in their education
  ◦ What they learn
  ◦ When they learn
  ◦ Where they learn
  ◦ How they learn

They expect to talk back, to have a conversation

They want their education to be relevant to the real world—the one they live in

They want it to be interesting and fun
Simulation and Instruction

2006 Study of Net Geners:

- Researchers played the same news message four different ways:
  - Traditional Radio Newscast.
  - Online newscast played with one click.
  - Interactive Webcast where they click to get to each news item.
  - Webcast where they clicked for each news item.
- Net Geners remembered less from traditional newscast which started from beginning to end than they did from interactive.
To Meet the Needs of Our Students

Simulation takes us from Broadcast to Interactive Learning
Simulation Benefits

- Risk–free environment to improve patient safety
- Improves proficiency through repetition
- Taps into visual, auditory and tactile (kinesthetic) learning modalities
- Variety of clinical training settings and situations
- Objective performance measurements

http://www.immersion.com/medical/
SIMULATIONS --- WHAT CAN BE TAUGHT

- Technical Skills
  - Technical proficiency measured by:
    - Procedural time
    - Numbers of errors
    - Need for assistance

- Non–Technical Skills
  - Teamwork
  - Communication
  - Judgment
  - Leadership
Simulator Technology for:  
Medical Assisting

www.mhhe.com/activsim
ACTIVSim Education Principle

SIMULATION

- Make your mistakes in a safe environment
- Apply your skills and knowledge

SELF-ASSESSMENT

- Stimulating learners to become conscious about where they need to learn more!

DEBRIEFING

- Key to effective learning: Feedback based on your responses
17 Clinical Skill Simulators

Fully interactive, practice of all the important clinical skills

- Self protection
- Venipuncture
- Waste disposal
- Spirometry
- Venipuncture
- Throat specimen & Strep A test
- Mono test
- Self protection
- Cap. puncture
- Temperature
- ECG
- Urinalysis
- Wrap for Autoclave
- Handwashing
- Self protection
- Throat culture
- Pulse & Respiration
- Capillary puncture & glucometer
- Blood pressure
- Run Autoclave
6 Patient Simulators

Communicate
→
Obtain vitals signs
→
Document

- Chest Pain
- Diabetes
- Skin condition
- Gyn Exam (PAP Smear)
- Child with mother (Diarrhea)
- Hypertension
Show Class Progress

FAST TRACK - The Fastest Way To Competence

Practice measuring a blood pressure
Practice handling a patient with known hypertension

SKILLS LABS SIMULATORS
- Pulse & respiration
- Blood pressure
- Self protection
- Self protection cap. puncture
- Self protection throat culture
- Waste disposal
- Venipuncture
- Cap. puncture & glucometer
- ECG
- Spirometry
- Hand washing
- Throat specimen & Strep A test
- Temperature
- Urinalysis
- Wrap for autoclave
- Run autoclave
- Micona test
- Hyperension
- Child & mother

SIMULATED PATIENTS
- Diabetes
- GYN exam
- Skin condition
- Chest pain

Need assistance? Please visit MHHE Support or call 800.331.5094 for technical support.

Download SCORM

Click here to download a SCORM 1.2 package for use in your existing Learning Management System.
Goal of Using Simulations

Students should progress from

łuż Unconsciously incompetent
to

Consciously competent
Sharing

What are your experiences with using simulation in the classroom?
Adapting to learning styles and students

Allowing for self-directed anytime, anywhere learning

Providing a safe, interactive, virtual environment to transition knowledge into practice
Take your students from:

By utilizing simulators in your medical assisting program.

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References


