Innovative Solutions: Robots in Nursing Education?

Presentation by:

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Garfield Jones, InTouch Health

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Agenda

- Nursing Institute of West Central Ohio Collaboration
- Data Driven Research
- InTouch Health Remote Presence Robot Demonstration
- Highlights from Faculty Extender Remote Presence Robot Research Project
- Future Implications
- Questions and Answers
Nursing Institute of West Central Ohio

Collaboration:
- 11 Schools of Nursing
- Veterans Affairs
- Wright Patterson Air Force Base
- Health Care Providers
- Businesses

Mission
Provide support and leadership for an effective regional RN workforce through innovative partnerships, service, education and research

Vision
A nationally recognized regional RN workforce providing safe, accessible, quality healthcare

Serving 16 Counties in West Central Ohio
State of Ohio Nursing Projections

We are here

Ohio will be short 32,000 nurses by 2020
Local Supply/Demand Study

Reengineered a 20 year old national HRSA Model to create first ever regional workforce prediction model

The Perfect Storm is Brewing Forecast Bleak

- 38% RN Shortage by 2020

Growing RN Shortage
Declining Faculty

FTE RN Shortage

Year

2005 2010 2015 2020

Nurses (x 1000)

Nursing Faculty (x 100)
Answer: A futuristic approach to testing models and implementing new programs for the nursing students, nursing workforce, and faculty.
Remote Presence Robot (RP7) Demonstration
Remote Presence Robot Faculty Extender Research Study

- 8 pre-licensure RN programs participated (Rural, Community, Urban – ADN & BSN)

- Subjects
  - 10 experienced nurse faculty
  - 82 nursing students (all levels)
    - 1st year students = 14
    - 2nd year students = 30
    - 3rd year students = 21
    - 4th year students = 17
Gathering impressions from faculty and students about usefulness of the remote presence robot as a faculty extender in clinical simulation learning
Objectives of This Study

- Evaluate faculty’s acceptance of the use of a remote robot for education and training of nursing students
- Evaluate nursing students’ acceptance of receiving clinical instruction via a remote presence robot
- Evaluate ergonomics application for nursing education and training
Study Methods

- **Selection**
  Experienced and qualified faculty recruited from RN programs
- **Training**
  Robot operation and simulation scenario orientation
- **Scheduling and student volunteers**
- **Pre/Post survey data & video recording of sessions**
What was your initial reaction about the robot?
Do you think a robot could be used as a faculty extender?
Was the robot effective?

Results:
- Not effective: 0%
- Very effective: 50%
Were you satisfied with this study?

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<thead>
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<th>Results</th>
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<tbody>
<tr>
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<td>10%</td>
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<td>50%</td>
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Did you find the exploratory study to be friendly?

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Faculty’s Additional Findings

Positive Faculty Comments

Enjoyed working with high technology

Conducive to good interaction with students

Created a positive learning experience

Received good support and assistance

Supported potential use of robot off-site
Conclusion from Faculty Data Analysis

• Initial reaction of the faculty about robot was medium to favorable

• After the study, 82% of the faculty showed high or very high acceptance of the use of remote robot for education and training of nursing students.
What was your initial reaction about the robot?
Do you think a robot could be used as a faculty extender?

SQN2: Could robot be useful as a faculty extender?

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<td>4%</td>
<td>11%</td>
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- Not Useful
- Very Useful
Was the remote presence robot effective as an instructor?

SQN3: Was remote presence robot effective?

Results

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<td>44%</td>
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Did you find the exploratory study to be user friendly?

SQN4: Was exploratory study user friendly?

Results

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Were you satisfied with this classroom experience?

SQN5: Were you satisfied with this classroom experience?

Results

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<td>9%</td>
<td>33%</td>
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<tr>
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Students’ Acceptance Ratings

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<tbody>
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<td>1%</td>
<td>3%</td>
<td>9%</td>
<td>39%</td>
<td>48%</td>
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<tr>
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<td>Medium acceptance</td>
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Conclusion of the student data analysis based on the acceptance criteria

- 48% had very high acceptance
- 39% had high acceptance
- 9% had medium acceptance
- 3% had low acceptance
- 1% had very low acceptance
Students’ Positive Comments

• Encouraged to think independently with faculty supervision which reduced stress
• Enjoyed working with advanced technology such as the robot and simulator
• Good environmental learning without stress
• Will create opportunity for distance learning
• This study demonstrated the focus on learning process rather than techniques in a regular lab.
Preliminary study demonstrated that both participants, faculty and students, gave high acceptance rating for the use of remote presence robot as a faculty extender technology for teaching nursing courses.
Faculty and Student Recommendations

- Develop and improve training scenarios (all)
- Improve audio communication (all)
- Provide more space for robot mobility (all)
- Improve back-and-forth interaction with faculty (3rd)
- Better vision (wide angle) for the robot (all)
- Provide video replay for training (2nd)
- Reduce class size for better training (4th)

Recommendations for improvement
Future Study Questions

- Can expert faculty be used via the robot to serve as teaching mentors to novice faculty and teaching assistants?

- Can expert nurse clinicians be linked to learners via the RP7 robot for nursing rounds or other learning experiences?
Remote Presence Robots in Educational and Clinical Settings

Other RP7 Applications

• Nursing Beta Testing
  Geriatric rounds
  Long distant care family visits
  Case Studies
  Chart reviews
  JCAHO & State survey readiness monitor

• Physicians’ Usage – e.g. Stroke Network

• Faculty – Student Research Study (8 Programs of Nursing & 82 Students)
Remote Presence Robots in Educational and Clinical Settings

Other RP7 Applications

• National Science Foundation Grant Pursuits

• Military – Government applications

• Civilian health care provider and academia partner plans

• Corporate links
Many thanks goes to Congressman David Hobson and Senator George Voinovich for the federal appropriations monies for the NIWCO and to the sustainability partners Wright State University, Premier Health System, Sinclair Community College.

Future Contact Information

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