

## Serious Gaming - Its Place in Interprofessional Education

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## Objectives



1. Participants will discuss how video conferencing and a virtual environment can be utilized for interprofessional education.
2. Participants will take part in a demonstration of avatar creation, conferencing, and interviewing of a "virtual" patient.
3. Participants will review IPP competencies.

## Background



"Serious Gaming" Terms - (Virtual reality, virtual world, avatars, 3DVW, Second Life®, Virtual Learning Environments (VLE) and Digital Clinical Experience - DCE ("Tina"))

- "A computer-generated simulation of the real or imagined environment or world." (Gaddis, 1998)
- "Serious games are applications that use computer game-derived technologies and design strategies to achieve educational aims. (Lynch-Sauer et al 2011)

## Background – Nsg. Education



- "Avatars and virtual worlds have the potential to make active learning at a distance possible, especially when students have time constraints that make sitting in traditional classrooms unrealistic". (Miller, Jensen 2014)
- Three overarching themes emerge: "(a) critical reasoning skills, (b) student-centered learning, and (c) instructional design considerations". (De Gagne et al, 2013)
- "An overwhelming majority (94%) of students liked the idea of using technology to enhance health care education, and 88% believed that nursing education should make better use of video games and related new media technology". (Lynch-Sauer et al 2011)

## Background – NP and IPE education



NP Education and Virtual Environments

- PNP students in Second Life® primary care clinic (Cook, 2012)

Interprofessional Education

- SBIRT IPE training (Flemming et al, 2009)



## Methods - Preparation

Completion of an online learning module. The module included the following topics:

1. Care of frail elders requires team approach
2. Interprofessional practice versus multi-disciplinary approach
3. Info on all disciplines

NP students received content and practice re: meeting facilitation.



## Methods - The Virtual Clinic



- Enter the Virtual Clinic at <https://www.uvm.edu/medicine/simlab/?Page=virtualclinic.html&SM=ipemenu.html>
- Use the password: UVMDIVE
- Enter your information
- Choose an avatar

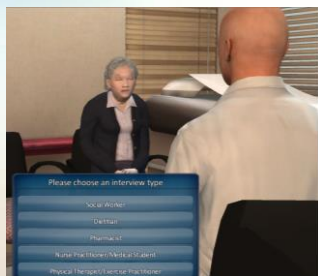


## Methods - The Virtual Clinic



Choose the type of interview:

- Social Worker
- Dietitian
- Pharmacist
- NP/MD
- Physical Therapist/  
Exercise Practitioner



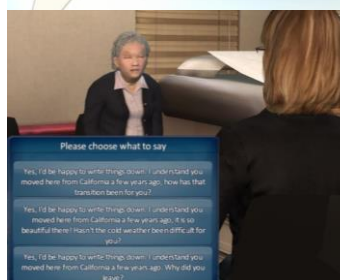
## Methods - Interviewing Skills



During the interview of Mrs. Kim, student must choose the questions that are:

- Culturally appropriate
- Open ended
- Jargon free
- Consistent with principles of Motivational Interviewing

Incorrect choices get instant feedback.



## Methods - Information Gathering



Students must:

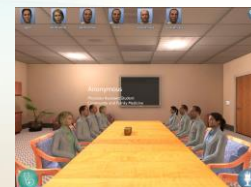
- Listen to an interview at the pace of an elder
- Review the last primary care visit note, labs, and a recent Emergency Room note
- Physical exam not included in this visit



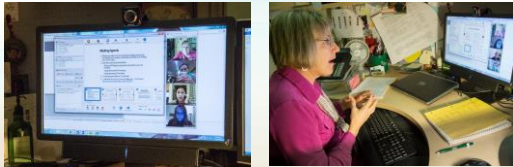
## Methods - IPP Virtual Case Conferencing



- Students from the same discipline or different disciplines can meet in the Virtual conference room to discuss the case and plan care.
- Avatars are polite! They:
  - Speak one at a time
  - Raise hands
  - Nod or shake head "no"



### Methods – IPP Case Conferencing Video Conferencing via ReadyTalk®



Interprofessional conferences (90 minutes in length) were conducted for students to collaboratively developed a plan of care for a frail elder. Twelve conferences in the 2013 and 8 in 2014 after interviewing the patient in the Virtual Clinic

### Evaluation Methods

Online survey completed post video conference

- Demographic information
- 5 open ended questions
- 14 questions scored on a Likert scale and related to IP Competency Domain Framework
  - Values/Ethics
  - Roles/Responsibilities
  - Inter-professional communication
  - Teams/teamwork

These competencies provided a structure for the evaluation questions and a review by faculty in each discipline also provided content validity. Reliability of the survey instrument was not tested or established.

### Evaluation Findings

(n= 75) participating students

Gender: 76% female, 24% male

Age:

- Mean - 26 yrs.
- Range - 21-61 yrs.
- Median - 23 yrs.

Ethnicity:

- White 90%
- Asian 10%

Income: 10% low

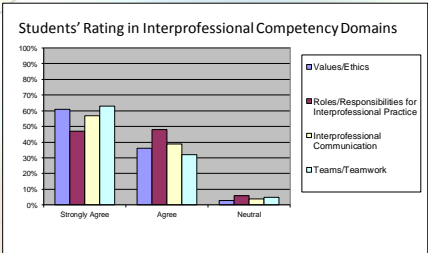
**Student Disciplines:**

- Nurse Practitioner 11% (8)
- Physical Therapy 11% (8)
- Pharmacy 14% (10)
- Social Work 14% (10)
- Nutrition 11% (8)
- Exercise Science 12% (9)
- Medicine 10% (7)
- Communication Sciences 16% (11)

### Evaluation Findings

- Data from 14 Likert scale questions were aggregated in four IP competency areas
- Participants rated the value of this activity positively across all four domains (mean rating of 57% Strongly Agree , 39% Agree, 5% Neutral)
- There was some differences noted by healthcare discipline.

### Results



The distribution of responses was significantly associated with IC Domain ( $p=0.002$  from Chi-Square test for association). In particular, the Role/Responsibility domain had a lower percentage of "Strongly agree" and higher percentage of "Agree" responses than other domains.

### Results

By discipline:

- The distribution of responses was also significantly associated with discipline ( $p<0.001$  from Chi-Square test for association).
- In particular, the SLP, RD, and PT groups had a lower percentage of "Strongly agree" and higher percentage of "Agree" responses than other groups.
- Also, the SLP and SW groups had a higher percentage of "Neutral" responses than other groups.

### Evaluation Findings

**Was the Virtual Clinic interview(s) a valuable experience? Why or why not?**

**Valued working with other disciplines (55%)**  
*"Yes. I thought it was very interesting and relevant to have all the care providers there to discuss different aspects of her care. It was helpful to get a better understanding of the medical perspective of her care while also making sure that Mrs. Kim was being respected and valued".*

**Negative comments about the Virtual Clinic (16%)**  
*"No, I did not like that you could only ask certain questions, there was more I wanted to ask her."*

### Evaluation Findings

**Please comment on what worked well for you in the Virtual Clinic.**

**Video conferencing (28%)**  
*"I liked that I could use my own computer and phone from home and that I could revisit the clinic online anytime I wanted to".*

**Discussion (28%)**  
*"Able to facilitate discussion among many participants in a constructive way".*  
*"Everybody was allowed to speak their mind and good ideas were shared".*

### Evaluation Findings

**Please comment on what could be improved about the Virtual Clinic and/or the Video Conference.**

**Video Conference format (24%)**  
*"The technology seemed to slow the pace of the meeting. It was confusing having to switch in and out of the conference, turning the camera on and off, and also the microphone".*

**Audio quality (15%)**  
*"Clinic wouldn't load, conference was at times hard to see/hear for everyone else in the room. It would have been easier to meet in person".*

### Evaluation Findings


**How could the Virtual Clinic be structured differently in order to better help you learn?**

**Virtual clinic changes (21%)**  
*"Allow different question possibilities that follow a different route".*  
*"Let you type your own questions in addition to canned ones"*

**No change (21%)**

### Discussion/Conclusions


- A virtual clinic and video conferencing can be used to offset the logistical difficulties of scheduling students from 8 professions in one place.
- "Serious gaming" is an acceptable learning platform for most students.
- Students highly value IPE opportunities and are curious about their role in IPP



The diagram consists of three interlocking gears. The top gear is red and labeled 'Learning'. The bottom-left gear is orange and labeled 'From'. The bottom-right gear is purple and labeled 'About'. Arrows indicate a clockwise flow from 'Learning' to 'With', 'From', 'About', and 'Each Other'.

### Discussion/Conclusions

- Opportunities to meet other students in-person are also highly valued by students
- Opportunities to observe real IP team in action must be cultivated.
- Meeting facilitation must be taught and practiced
- Participation by the entire class instead of individually was rated lower.

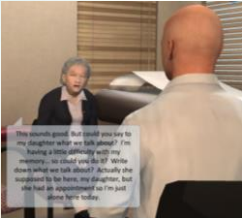


The photograph shows a group of five students (three women and two men) sitting around a table, looking at documents and talking to each other.

### Discussion/Conclusion

Creation of a virtual patient requires:


1. Resources (grant funding)
2. IP Faculty collaboration and support of effort
3. Technical expertise
4. Cultural expert consultation and actors with appropriate accents



### Discussion/Conclusion

Creation of a virtual patient has advantages:

1. IP Faculty collaboration
2. Tailored interview questions to reinforce Motivational Interviewing, cultural competency, and specific interview skills
3. Ability to adjust based on evaluations




### Future Research


- Further research involving IP educational pedagogy and the use of distance technologies is needed.
  - Compare uses of virtual clinic with larger, more diverse student groups
  - Identify Motivational Interviewing skills which need the most reinforcing
  - Follow up with participating students regarding perceptions of interprofessional practice application in their clinical education.

### Future Research

- Compare uses of virtual clinic with other learning strategies (e.g., standardized patient) and evaluate their cost-effectiveness
- Faculty acceptance or resistance on the use of virtual clinic



### Questions ??



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