

Online FNP Program

Using PBL and Embedded Technology
in the Virtual Classroom



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Rationale Problem-Based Learning (PBL) Methods and Process

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Online Family Nurse Practitioner Program: Using Problem-Based Learning (PBL) and Embedded Technology in the Virtual Classroom

- Overview
 - Rationale
 - PBL methods and process
 - Case study curriculum and template
 - i-Human technology
 - Faculty / Preceptor communication structure



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3

During this presentation we are going to discuss a bit about problem-based learning, henceforth known as PBL, the rationale behind its use in an online Family Nurse Practitioner Program, integration through discussion forums, and use of supplemental technology such as i-Human in presenting PBL cases.

Rationale

- Discussion Questions
- Online format of clinical courses
- Bridge the gap from online course to clinical experience
- Faculty and student interactions
- Online facilitation
- Virtual Learning Community



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4

The rationale behind the use of PBL in clinical education is multifaceted.

- The nature of PBL is questioning within a loosely and ill-defined presentation of facts or information. This structure makes PBL an obvious choice for implementation into online learning threads in lieu of typical discussion questions (Distler, 2008).
- Clinical courses, particularly in an online or even hybrid format pose an interesting challenge for faculty to ensure that students are indeed building clinical reasoning skills. Such skills are difficult to measure in any classroom, but through written PBL cases, the interaction between student, faculty and the ability of the faculty to see clear logic and progression of student clinical reasoning skills becomes much more easily accomplished (Crawford, 2011).
- PBL also serves as a clear link for students between what they are learning in the didactic course and actual patients they see in clinical (Hodges, 2011).
- PBL serves as a vehicle to create more frequent and meaningful student and faculty interactions.
- Online facilitation of these discussion, which can be viewed by all students and are saved within courses for students to go back and review at later dates, offers a method for students to learn from each other and to have ready access to review application of course information.
- PBL is a mechanism for creating 'community' within an online course, where students can work together, learning communication skills, how to identify evidence, consideration of differentials and application of current standards and guidelines.

PBL Methods and Process

- Adult and experiential learning theories
- Active participation
- Student centric
- Case studies based upon faculty experiences
- Evaluation rubrics change to fit the learning tool
- Faculty development and self-reflection



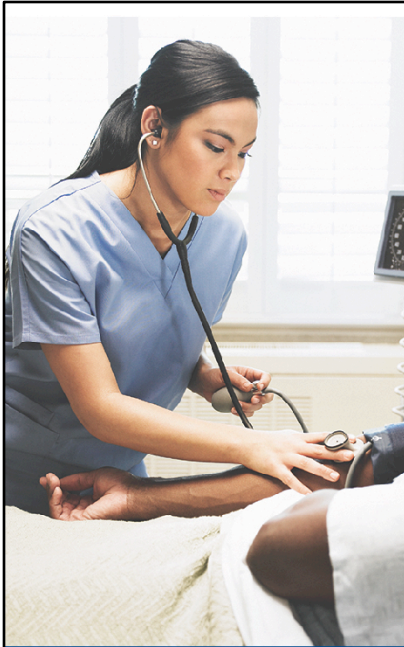
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5

PBL was originally developed to assist in physician education in the mid 1960's (Distler, 2008). PBL is based in adult learning and constructivism learning theories, PBL requires active participation of all students, not allowing for some students to sit passively by and depend on the work of others. It also requires 'equal' participation by students, whereby since all students must participate, in this particular implementation, a set number of times and on set days. These situations require constant evaluation, guidance and active discussion on the part of faculty to ensure that students are indeed on the correct path to proper clinical evaluation, diagnosis and treatment. Although this form of teaching takes more time and preparation by the faculty, the student-centered approach creates satisfaction for students (Poulton, 2009).

Through implementation of PBL discussions into the five clinical courses of the Chamberlain program we have worked to build upon faculty experiences and knowledge of disease, changed evaluation rubrics to reflect the high level of student participation and work expected, and worked to educate and involve faculty in learning more about PBL, using reflection in their own practice and building teams to create and edit cases.



Case Studies

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At Chamberlain

- Use of threaded discussion boards
- Follow a patient or family throughout program/course
- Initial background information given
- Content provided on three different days
- Solutions and analysis must be evidenced-based



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At Chamberlain our goals in the use of threaded discussion boards in clinical courses were built upon our understanding of students primary needs and weaknesses in FNP education.

These included:

- Extensive and plentiful practice in 'clinical reasoning'
- A method by which to attempt to tackle the vast content coverage required in in clinical advanced practice program.
- Ensuring that students knew how to find and apply current evidence and practice guidelines.
- To help students create an environment and personal practice of inquiry that would hopefully follow them into practice.
- To help students more easily make the knowledge translation/application of course content to clinical.
- Specifically we used the threaded discussion boards, present and are mandatory weekly in all Chamberlain College of Nursing graduate nursing courses, and developed cases based on course content that students would follow throughout the week. Specifically, in the family course, which holds the pediatric and reproductive women's health content, we created a family to be followed throughout each week. This family included not only health problems, but social, cultural, and spiritual conflicts that any NP might address in practice.

Meet the Family

- Care of the childbearing family course
- Field Family:
 - Mother – Kayla, 25 (living with children at parents)
 - Father – Mike, 27 (separated)
 - Daughter – Jo, 5
 - Son – Riley, 18 months
 - Maternal Grandmother – Mary L., 48 (Cuban immigrant)
 - Maternal Grandfather – Tom L., 52



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This is our family for NR-602, childbearing and childrearing family. This family has a separated mother and father, the mother is living with her parents currently some distance from the father and two small children. This case facilitates different family functioning, family conflict and presents a great opportunity for evaluation of developmental, sociocultural and family functioning needs.

Development of Cases

- Initial visit background, pertinent PMH, social, family history
- Week 1: Initial visit, well child exam
- Weeks 2-7: Episodic visits with focus on body systems
- Example Week 3: Behavioral and psychosocial health in children
 - 5-year old 'tantrums'
 - Difficulty in school



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The first case is an initial visit case, so new patient evaluation and history is needed. Well child exams begin the course to ensure that students begin with a baseline knowledge of pediatric primary care. Students are provided with initial information such as basic medical information but also a glimpse of what is occurring in the exam room with the mother and children. For example, in the initial case when they first meet Kayla and her children, the youngest is climbing on the exam table removing the otoscope from the wall while the elder is actively typing on the computer in the exam room.

From there, the additional cases are episodic in nature and relate to specific issues with both the mother and the children. The students deal with everything from behavioral disorders and respiratory complaints in children, to unplanned pregnancy in the mother.



Day 1:

- Initial information: background, reason for visit, history
- Students must:
 - Begin creating a prioritized differential list
 - Consider additional information needed
 - Find evidence


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When we provide information, it is limited. The students begin with a basic chief complaint, partial review of systems, and history. After this is provide students are expected to begin by creating a prioritized differential diagnosis list, begin building a list of additional information they would seek in practice, and find evidence to support both the differential and request for additional information.

Day 2:

- Physical exam with vital signs, cognitive development
- Students must:
 - Read and decipher the note
 - Calculate BMI, metric height and weight
 - Begin to build case for or against differentials

Discussion Day 2:

- Primary Diagnoses
- Differential Diagnoses



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After initial postings are made by students, they are provided with the physical exam and other pertinent information, in the case of the family course this is cognitive development or psychosocial information. This information is provided in the form of a documented note. Students must be able to read and decipher the note, begin building information to support their most likely differentials. They also must be able to calculate important information like BMI and metric height and weight, which are needed in pediatric drug calculations.

They then post the primary diagnosis they have selected with rational and he list of possible differential diagnoses.

Day 3

Discussion Day 3:

- Plan for primary diagnoses based in evidence
- Further diagnostic work-up not included above
- Medications
- Referrals
- Conservative measures
- Patient/family education



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On the final day of discussion any additional information such as laboratory values, radiographs or other diagnostic testing is provided. Students are required to make a plan for their primary diagnosis based in evidence, review medications (including the education they would provide the patient on purpose, administration, and side effects), any referrals that might be made, outline conservative and non-medical interventions and education.

Remember that all of this is done with overview, guidance and challenges presented by the course faculty.



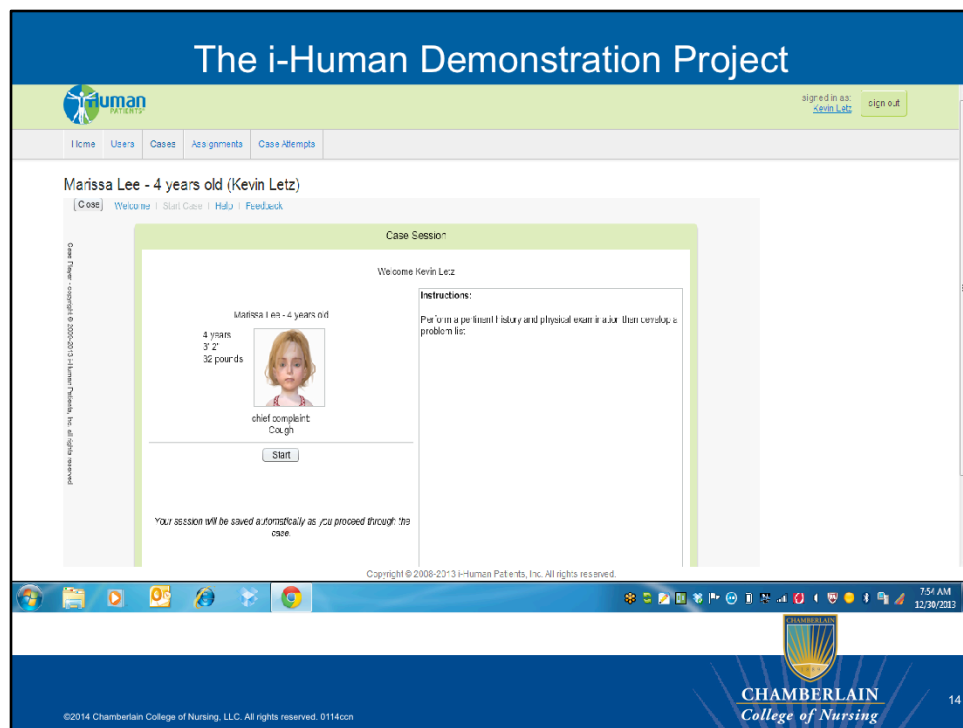
Integrating Simulated Patient Encounters

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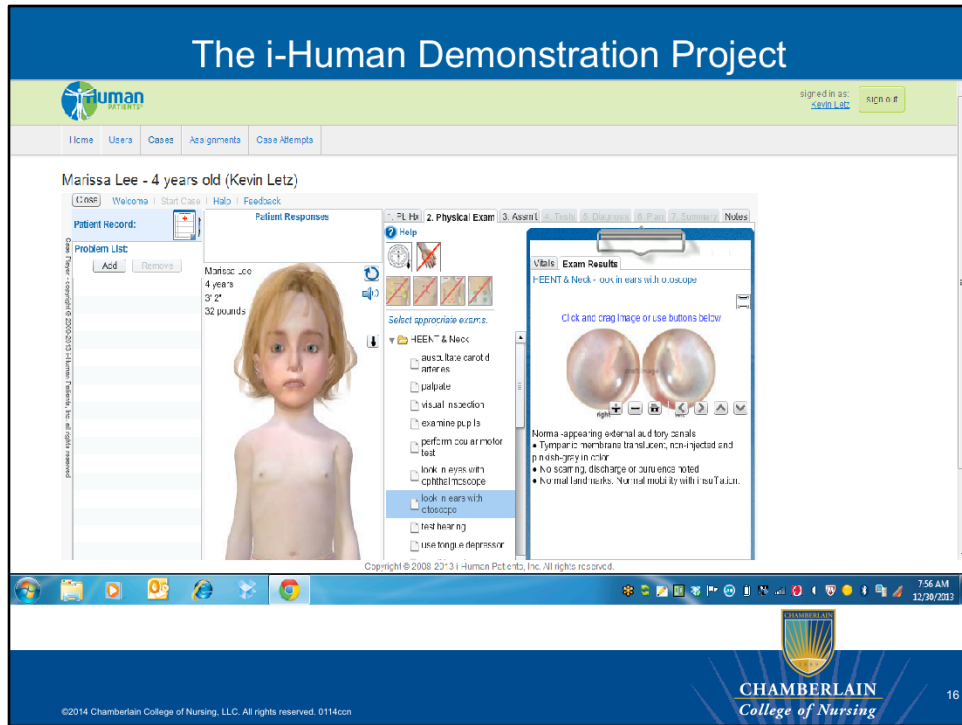


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To better assist students in understanding components of the physical exam and expand practice in clinical reasoning within the course, technology was evaluated, chosen and implemented by Chamberlain and the FNP faculty into some of the PBL cases. The technology of choice was iHuman.

i-Human is a web-based technology that allows students to explore patient cases in a simulation complete with a patient chart to document in, avatars to interact with in a life-like history and physical exam environment. The software includes caveats on anatomy and physiology, pathophysiology, pharmacology, histopathology, laboratory and radiographic interpretation (i-Human, n.d.).



This is an example of the physical exam. Students can assess specific parts of the body and get actual objective data to support their diagnosis and plan.

The i-Human Demonstration Project

Home Users Cases Assignments Case Attempts

Marissa Lee - 4 years old (Kevin Letz)

[Case](#) [Welcome](#) [Start Case](#) [Help](#) [Feedback](#)

Problem List:

[Add](#) [Remove](#)

Current Visit:

Patient: Marissa Lee
4 years
Sex: F
3'2" - 22 pounds

HPI (history of present illness)

Chief complaint: Cough

HPI: Runny nose started 4 days ago followed by a cough 2 days ago, both of which continue. Last night mother noticed wheezing.

PMH (previous medical history)

Other active problems: Peter has had 3 or more episodes of wheezing in the past usually with colds. History of eczema as an infant which continues but less severe. Egg allergy as a infant.

Medical, surgical, obstetric, hospitalizations: None

Allergies: None

Immunizations: Up to date.

Medications: OTC cough syrup.

Preventive Health: Immunizations up to date.

PM: Mother has asthma and allergies. Father has hypertension and hyperlipidemia.

SHT: Lives with mom and dad. No smoking in the home, 2 outside dogs.


ROS (review of systems)

General/Constitutional: A&O, No fever.

Skin/Intact: Some dry, scaly, red patches behind knees.

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7:56 AM
12/29/2012

This is an example of the current visit record in i-Human for this patient.

Faculty / Preceptor Communication Structure

- Clinical Affairs FNP on ground
- Advanced practice practicum specialist
- Practicum coordinators
- Faculty of record interaction with preceptor
- Evaluation methods and tracking using Task Stream technology



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18

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There are a number of people involved in the implementation and continual evaluation of PBL within our online FNP program. Our team consists of Clinical Affairs faculty, advanced practice practicum specialists who oversee the course design and learning, practicum coordinators who assist in communication with the students and clinical sites, faculty within the specific courses who also interact with students and preceptors, and the use of an integrated documentation system for students clinical activities. Likewise, the course is under continual evaluation by the faculty expert each year and the entire FNP faculty are closely involved in the evaluation of PBL within the curriculum.

Thank you!

Questions?



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19

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