

# Case-Based Learning: Interactive Learning through Integrated E-Module Technology

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# Introductions

- **Session type:** Focused Discussion
- **Area of focus:** Integrating Technology into the Learning Experience
- **Presenters:**
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  - Shaun Horak, DMSc, PA-C



# Objectives

- Describe the components of an e-learning module.
- Discuss implementation strategies for e-learning in a PA program curriculum.
- Describe cost-effective strategies to development of interactive e-learning modules.
- Describe the steps to developing an e-learning module.



# Overview

## What is an e-module?

10 – 15 minute e-learning platform that has no more than one or two learning concepts and incorporates a blend of teaching and assessment tools that may include video clips, direct instruction, gaming elements and social media.



# E-Learning Module Construction Tips

- Include learning objectives
- Frequent quizzing or interactive learning checks
- Short & chunked
- Proceeds logically with clear instructions
- Visually appealing
- ADA compliant
- References & citations



# E-learning Scorecard

- Available online – UNMC E-learning Lab ([unmc.edu/elearning](http://unmc.edu/elearning))
- Assesses:
  - Method & practice of education
  - Instructional design

## Individual Criterion Score

**Well Done** = 3 points

**Adequate** = 2 points

**Needs improvement** = 1 point

**Please note:** Revisions are recommended for any criterion scored "1"

## All Criterion Total Score

**Gold Standard** = 41 – 48 points

This Module is an e-learning exemplar demonstrating significant evidence of mastery content and delivery

**Accomplished** = 32 – 40 points

This module meets the basic criteria for e-learning modules

**Needs improvement** = <32 point

This module does not meet the basic criteria for e-learning modules



# Accessibility

- Audio & video should have transcript & closed-captioning
- All pictures, charts, graphs should have text description
- Content contains actual text
- Multiple methods used to convey information
- Links use descriptive text
  - [unmc.edu/elearning](http://unmc.edu/elearning) ←Good
  - [Click Here](#) ←Poor

←This is correct



# UNMC PA E-Module Utilization

## Type 1: Traditional and self-directed

- Accessible online
- Self-paced, completed independently
- Examples: Interviewer training, specific clinical competency

## Type 2: Interactive and facilitated

- Link provided
- Paced with instruction
- Example: Problem-Based Learning (PBL)



# Traditional & Self-Directed: Interviewer Training

Welcome! I'm Gloria, a physician assistant. I'll be your host today as we discuss UNMC's admissions, multiple mini-interviews, and bias awareness.



UNMC PA transitioned to MMI because we desired:

- Increased student retention
- A more inclusive learning environment
- Increased class diversity
- Increased student resilience & flexibility
- Reduced professionalism issues



# Interactive & facilitated

Establish a broad differential diagnosis.

Case Info | My Info | Resources | Student Notes

## Chief Complaint (CC):



"I don't know what happened"

**Nurse/MA Note:**  
A 61-year-old female is brought to the emergency department by EMS after a fall. She reports she was standing at her kitchen sink when she got lightheaded. The next thing she remembers she was lying on the floor. Fortunately she had her cell phone in her pocket, and she was able to call for help.

< PREV    NEXT >

Vasovagal syncope	Pulmonary embolus
Cardiogenic syncope	Orthostatic syncope
Seizure	Hip or lower extremity fracture
Subdural hematoma	Hyponatremia
5.	12.

Click a System to See Results

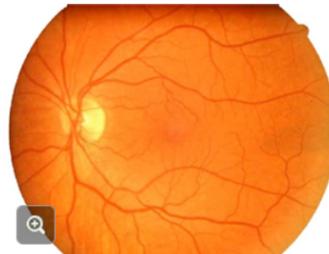
Vitals

General

Skin

[Click Here to Reset](#)

**Eyes:** PERRL. EOMs intact and painless. Funduscopic exam shows present red reflex....interpret the rest



# PBL E-module Integration

- Traditional, paper word-document cases
- Development of an e-module PBL template
- Merged traditional with e-module
- Strung together “chunks” of case (HPI, differential, etc.)
- With faculty facilitation, students complete e-module PBL



# Electronic Transition

## Problem Solving Case #5

### Cardiology

#### Student Copy

#### Subjective:

**Chief Complaint (CC):** "I have a cough."

**Initial History of Present Illness (HPI):** Patient is a 59-year old male presenting to the clinic today with the main complaint of a cough. The patient is accompanied by his wife and states that it is at his wife's urging that he has come in today. Patient states he's been bothered by a cough for the last several months and has recently experienced some shortness of breath.

#### Stop and answer the following:

1. Record the initial facts of the case.
2. Create a differential diagnosis
3. Using the chart below, list your initial HPI questions related to your differential.

Differential Dx.	Key Question

## Chief Complaint (CC):



"I have a cough."

#### Nurse/MA Note:

Patient is a 59-year old male presenting to the clinic today with the main complaint of a cough. The patient is accompanied by his wife and states that it is at his wife's urging that he has come in today. Patient states he's been bothered by a cough for the last several months and has recently experienced some shortness of breath.



# E-LEARNING



# eLearning

Healthcare Reform Primer Menu Resources

## The U.S. Healthcare System & Healthcare Reform: A Primer for the Health Professions Student

Developed by: Kyle Meyer, Ph.D.  
UNMC College of Allied Health Professions

ESTIMATED TIME: 75 Minutes **START**



Video player controls: play, volume, progress bar, full screen

# Self Administered

## DIRECTIONS

Select each colored box to learn more, then select the next arrow to continue.

### To navigate the module:

- Listen/read directions below title of each slide for instruction
- Wait for audio narration to complete before exiting slide
- Look for icons on slide for additional exploration



**Additional Information**  
(Hover or Click to  
Access)



**Side Bar Menu Icon**  
(Click to Access)  
Side Bar includes  
access to Landscape  
and Home Menu

**Next/Continue  
Button**



# Modules

Healthcare Reform Primer Menu Resources

## MAIN MENU

This is a five-part series that should be completed in sequence. Part One must be completed first, after the [Entrance Survey](#) is finished. Quiz Results and Exit Survey will unlock after 1-5 have been visited.

Entrance Survey		
<b>Part One:</b> The U.S. Healthcare System Landscape	<b>Part Two:</b> A Brief History – Major U.S. Healthcare Reforms 1920s - 1950s	<b>Part Three:</b> A Brief History – Major U.S. Healthcare Reforms 1960s-1970s
<b>Part Four:</b> A Brief History - Major U.S. Healthcare Reforms 1980s - 1990s	<b>Part Five:</b> A Brief History - Major U.S. Healthcare Reforms 2000s-2020s	
		<b>Parts 1-5 Quiz Results</b>
Exit Survey		

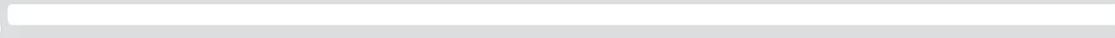
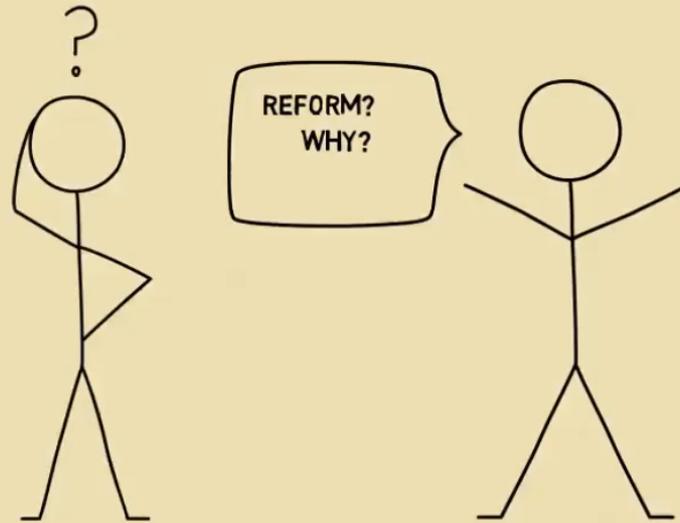


Navigation controls: speaker, chat, play, progress bar, refresh.

# Healthcare Reform

Healthcare Reform Primer

Menu Resources



← PREV

NEXT →



# Chunks and Checks

## PART ONE: QUESTION #1

In a free or open market economy, prices for goods and services are determined by which of the following:

- demand, supply and consumer choice.
- survey responses according to Facebook.
- individual preferences.

FREE MARKET

SUBMIT



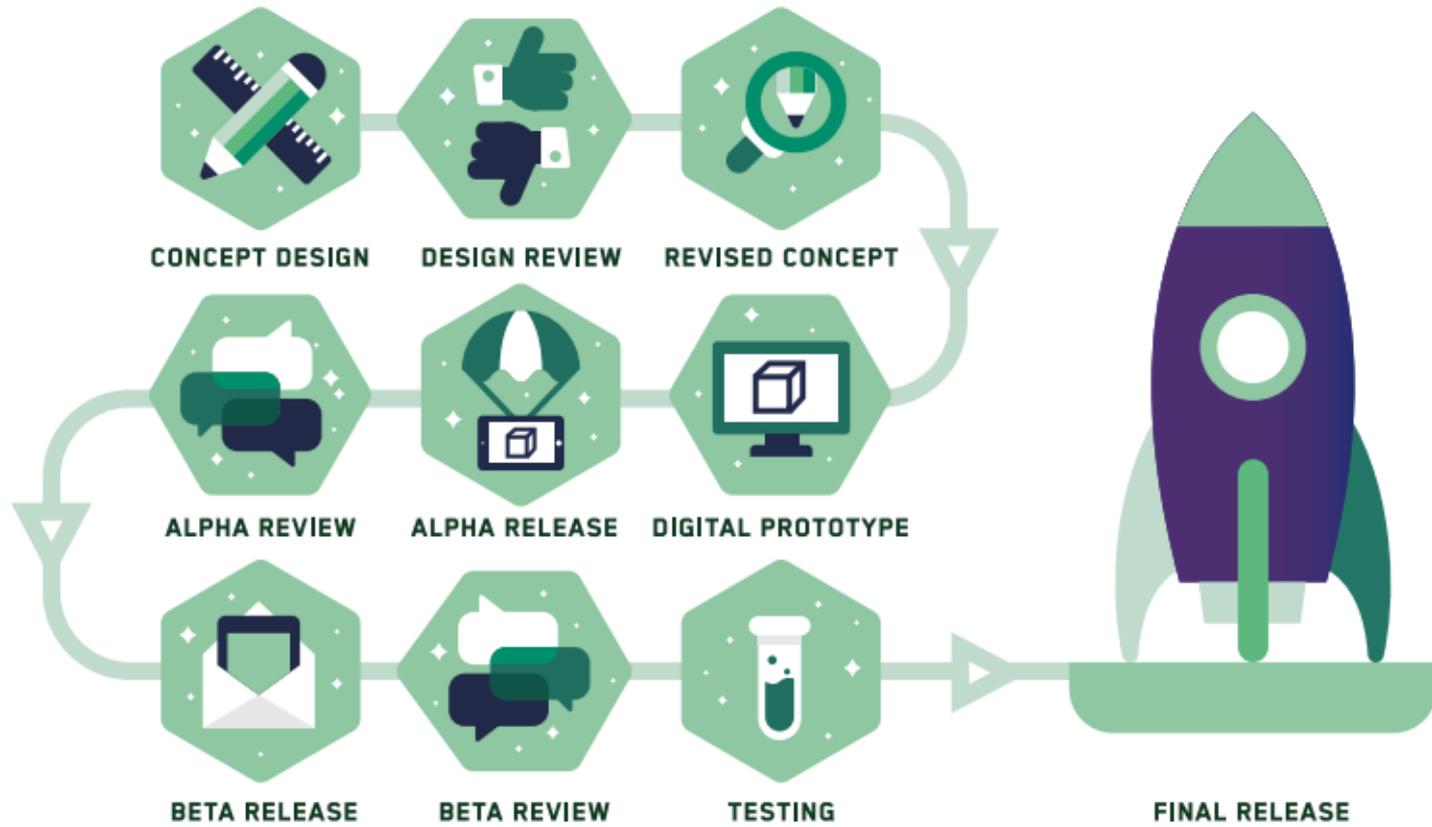
# E-Learning Resources

## Software



- UNMC E-Learning Lab
- Instructional Design & Technology Experts
- Subject Matter Experts
- E-Learning Support Team
- Laptops for checkout
- Wacom Tablet
- Cameras & mics
- Whisper Room - record narration

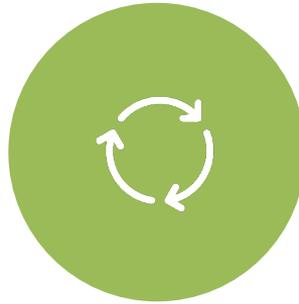




# Development: Cost & logistics



PLANNING



IMPLEMENTATION



REVISIONS



# Planning



Available  
Technology



Cost



Faculty Interest  
and Expertise



Curriculum  
Development



# Implementation

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Template Design

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Case Content

---

Multimedia Resources

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Time Requirements

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Faculty Training

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Delivery to Students



# Revisions

Student and  
Faculty Evaluations

Course  
Assessment Data

Modifications and Revisions



# Conclusion

- E-Learning Module
- Type 1: Traditional and self-directed
- Type 2: Interactive and facilitated



# References

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3. Kim K. Evaluation of an e-PBL model to promote individual reasoning. *Medical teacher*. 2013;35(3):e978-e983. doi: 10.3109/0142159X.2012.717185.
4. Jauregui J. A novel approach to medical student peer-assisted learning through case-based simulations. *The western journal of emergency medicine*. 01/2018:193-197. doi: 10.5811/westjem.2017.10.35319.
5. Holland JC. Undergraduate medical students' usage and perceptions of anatomical case-based learning: Comparison of facilitated small group discussions and eLearning resources. *Anatomical sciences education*. 10/2018. doi: 10.1002/ase.1824.
6. UNMC E-Learning Module Scorecard. (n.d.). Retrieved from [https://www.unmc.edu/elearning/resource-center/project-development/UNMC\\_E-Learning\\_Module\\_Scorecard.pdf](https://www.unmc.edu/elearning/resource-center/project-development/UNMC_E-Learning_Module_Scorecard.pdf)





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