

E-Learning Modules: Bringing Health Professions Educational Content to a Broader Audience

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Disclosure

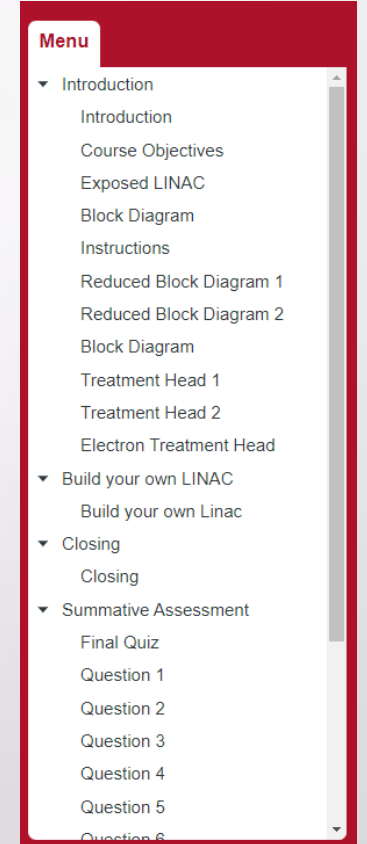
Some of the work referenced in this presentation was conducted by the University of Nebraska Medical Center (UNMC) and is associated with a funded awards program sponsored by the E-Learning group.

Objectives

1. Introduce the concept and benefits of e-learning modules in health professions education
2. Explore the various types of formats of e-learning modules
3. Provide practical recommendations for integrating e-learning modules into existing educational programs

Concept & Benefits of e-Learning Modules

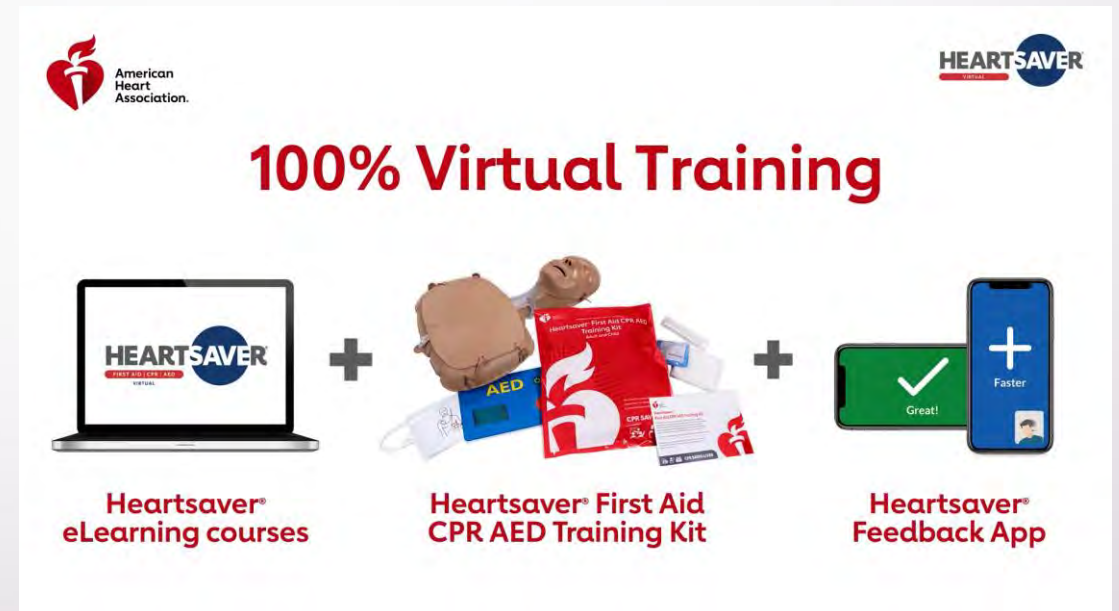
- Concept
 - e-Learning modules are a tool used to guide students through educational content in a controlled order.
- Benefits
 - Potential to reach a larger market¹
 - Potential economic benefits²
 - Educational benefits³
 - Interaction and satisfaction⁴
 - Rich feedback and real-time evaluation⁵



1. Bartolic-Zlomislic & Bates, 1999
2. Bartley and Golek, 2004
3. Guragain, 2016
4. Roblyer and Ekhaml, 2001
5. Taylor, 2002

e-Learning Modules in Healthcare

- Health management⁶
- Orientation⁷
- University education⁸
- Training
 - Infectious disease
 - Surgery
 - Regulatory training
 - CPR⁹



6. Car et al. 2018

7. Shih et al. 2013

8. Syed et al. 2021

9. American Heart Association

Comparing e-Learning to Traditional Methods

- Review of trial registers on e-Learning in 2016 yielded the conclusion that **“when compared to traditional learning methods, e-Learning may make little to no difference in patient outcomes or health professionals behaviors, skills or knowledge”**¹⁰
 - Review of 16 randomized trials involving 5679 healthcare professionals.
- When presented with the same learning materials in each style, the e-Learning arm showed improved mean knowledge score.¹¹⁻¹⁴

¹⁰ Vaona et al. (2018)

¹¹ Moazami et al (2014)

¹² Silva et al (2023)

¹³ Unger et al (2023)

¹⁴ Ketev et al (2023)

Formats of e-Learning Modules

- Computer based training (can be synchronous or asynchronous)
- Game-based learning
- Micro-content
- Videos
- Webinars
- Augmented/Virtual Reality
- Simulations

Formats of e-Learning Modules

- Computer based training (can be synchronous or asynchronous)



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Formats of e-Learning Modules

- Game-based learning

Kahoot!
















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Formats of e-Learning Modules

- Micro-content



 E-LEARNING	VS	 CLASSROOM
 Can be completed anywhere with an internet connection. Anytime a learner is free-progress is saved.		 Learners have to be available at the same time and be the same place.
 Complete at your own pace. Don't rush to keep up with people around you.		 Trainer can focus more on particular topics depending on group needs.
 Overhead costs are reduced (no travel time, accommodations etc.)		 May cost a lot for accommodation and getting to the training venue.
 If you are unsure about something, you can go back over it again and again.		 You can ask questions at the time of the training.
 Content is engaging and interactive.		 Ideal if the learner group aren't confident using computers.
<div>E-LEARNING ACADEMY</div> <div>View our full class curriculum at www.e-learningacademy.com</div> <div><small>Source: https://buffer-media-uploads.s3.amazonaws.com/56558577b88a5e1d604267d1572c73-rcb3e8976e090311/3ef4a51aac0e499dc8f622767b3dc0e.jpg</small></div>		

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Formats of e-Learning Modules

- Videos


webmedia.unmc.edu/eLearning_open/RFA11/LinearAccelerators/

Transcript Help Exit


Microwave power source

Generates electrical power which is later used to accelerate electrons

Klystron



Magnetron



Khan (2003)

Menu

- Introduction
 - Introduction
 - Course Objectives
 - Exposed LINAC
 - Block Diagram
 - Instructions
 - Reduced Block Diagram 1
 - Reduced Block Diagram 2
 - Block Diagram
 - Treatment Head 1
 - Treatment Head 2
 - Electron Treatment Head
- Build your own LINAC
- Closing
- Summative Assessment

◀ ▶

◁ PREV NEXT ▷

Formats of e-Learning Modules

- Computer based training (can be synchronous or asynchronous)
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- Videos
- Webinars
- Augmented/Virtual Reality
- Simulations

Formats of e-Learning Modules

- Webinars



Formats of e-Learning Modules

- Computer based training (can be synchronous or asynchronous)
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- Simulations

Formats of e-Learning Modules

- Augmented/Virtual Reality



Formats of e-Learning Modules

- Computer based training (can be synchronous or asynchronous)
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- Simulations

Formats of e-Learning Modules

- Simulations

The screenshot shows a web browser window with the URL `webmedia.unmc.edu/eLearning_open/RFA10/PhysicistPatientCommunication/`. The page has a red header with the UNMC logo and navigation links: 'Transcript', 'Help', and 'Exit'. The main content area is white and features the title 'Simulated Patient Interaction' in red. Below the title, there is a paragraph of text: 'This simulation portrays a consultation between you (the physicist) and the patient (Mr. Wood) who is here for his first day of radiosurgery treatment. He has brought a printed list of questions with him. Your goal is to show him the printout of his treatment plan and answer his questions.' Below this text is another paragraph: 'During the simulation, view the patient's prompt and select one of two physicist responses. You will then see the consequence of this response, followed by the next prompt and response choice. Once you reach the end of the simulation, you may go back and try a different path or continue on to the assessment quiz.' To the right of the text are two red buttons labeled 'Choice 1' and 'Choice 2'. On the left side of the page, there is a 'Menu' sidebar with a list of items: 'Introduction Complete', 'Strategies' (expanded), 'Physicist-patient communication...', 'Justification', 'Autonomy', 'Beneficence', 'Training is essential!', 'Consult components', 'Engage', 'Empathize', 'Educate', 'Enlist', 'Common questions', 'Quiz instructions', 'DIBH consult video', 'Question 1', 'Question 2', 'Strategies Complete', 'Simulation', 'Summative Assessment', 'Quiz Instructions', 'Question 1', and 'Question 2'. The 'Strategies Complete' item is highlighted. At the bottom of the page, there is a red footer with a UNMC logo, a progress bar, and navigation buttons: 'PREV' and 'NEXT'.

webmedia.unmc.edu/eLearning_open/RFA10/PhysicistPatientCommunication/

Transcript Help Exit

Simulated Patient Interaction

This simulation portrays a consultation between you (the physicist) and the patient (Mr. Wood) who is here for his first day of radiosurgery treatment. He has brought a printed list of questions with him. Your goal is to show him the printout of his treatment plan and answer his questions.

During the simulation, view the patient's prompt and select one of two physicist responses. You will then see the consequence of this response, followed by the next prompt and response choice. Once you reach the end of the simulation, you may go back and try a different path or continue on to the assessment quiz.

Choice 1

Choice 2

Menu

- Introduction Complete
- Strategies
 - Physicist-patient communication...
 - Justification
 - Autonomy
 - Beneficence
 - Training is essential!
 - Consult components
 - Engage
 - Empathize
 - Educate
 - Enlist
 - Common questions
 - Quiz instructions
 - DIBH consult video
 - Question 1
 - Question 2
- Strategies Complete
- Simulation
- Summative Assessment
 - Quiz Instructions
 - Question 1
 - Question 2

PREV NEXT

Implementation of e-Learning Modules

1. Assess what content you'd like to present/adapt as e-Learning
2. Choose the right technology
3. Design content
4. Integrate
5. Feedback and assessment
6. Implement changes
7. Continuous evaluation

Implementation of e-Learning Modules

1. Assess what content you'd like to present/adapt as e-Learning
 - a. Areas students struggle with traditional methods
 - b. Areas where interactivity would benefit learners
 - c. Areas critical to learning objectives or key points



Implementation of e-Learning Modules

2. Choose the right technology

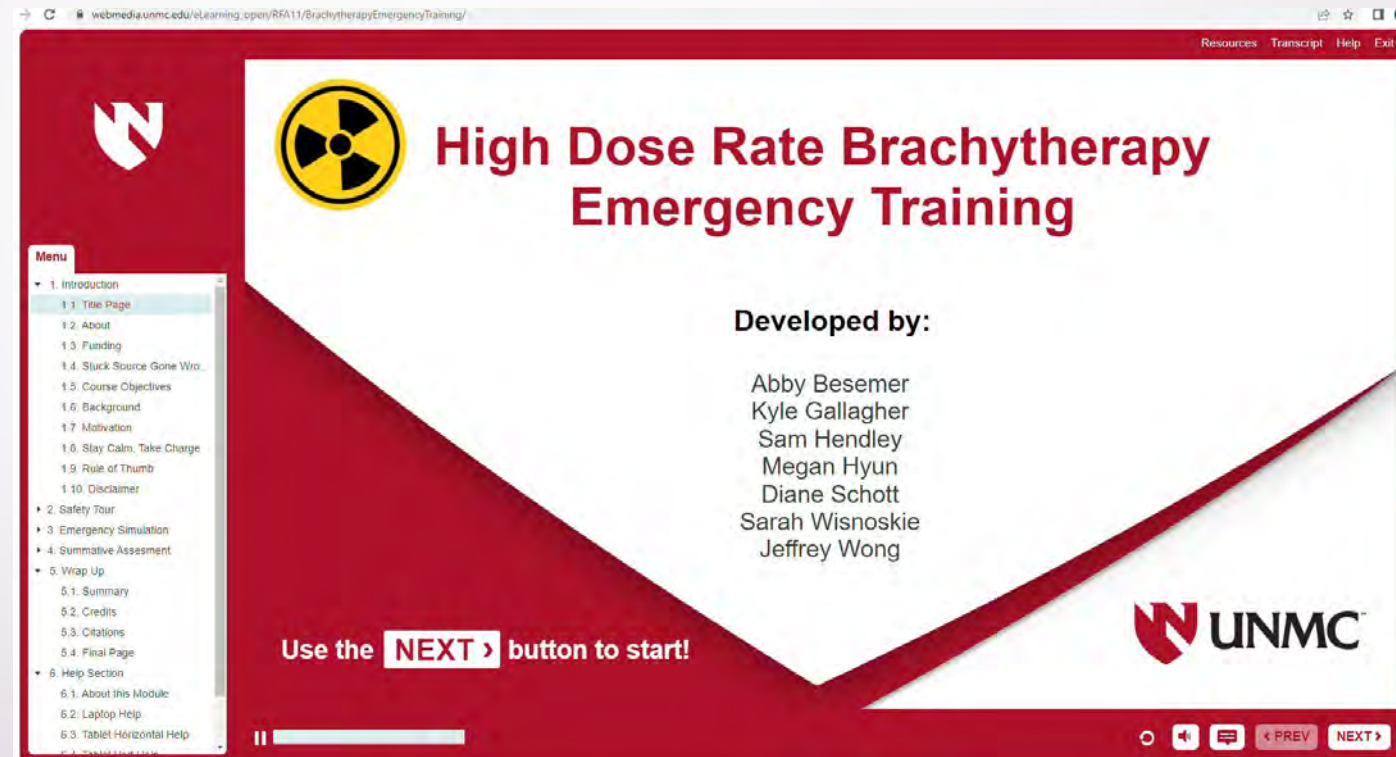
a) Select ideal format and research means to achieve it



Implementation of e-Learning Modules

3. Design content

- a. Length of content – 15 min ideal
- b. Engagement - hook



Implementation of e-Learning Modules

5. Feedback and assessment¹⁵
6. Implement changes
7. Continuous evaluation

Increased Perception of Importance

Increased Confidence

Increased Self Evaluation Scores

Implementation of e-Learning Modules

- Qualitative Feedback:
 - Things the module did well:
 - “[The module] kept things light and created an environment in which I felt safe learning. I appreciated how well the work was contextualized:”
 - “It was nice that the module was interactive because it kept me focused on the content”
 - Areas of improvement:
 - Simulation – “Some of the options in the simulation felt like neither were correct”
 - “Would love more examples”, “expand to more scenarios”, “explanation of other situations”

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Acknowledgements

Module Teams:

Megan Hyun
Abby Besemer
Dandan Zheng
Jeffrey Wong
Diane Schott
Lisa Bartenhagen
Jana Koth
Kristel Eyrich
Michaela McClellan
Caleb McGowan
Julie Andersen
Kyle Gallagher
Sam Hendley

UNMC E-Learning:

Peggy Moore
Steph Langel
Tuggen Even
April Elker
Dele Davis

Novant Health:

Alan Baydush
Lalith Kumaraswamy
Adair Carpenter

References

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References

E-Learning Links:

A physicist's primer for effective patient communication:

<https://www.unmc.edu/elearning/egallery/a-physicists-primer-for-effective-patient-communication/>

Radiation Detection & Measurement:

<https://www.unmc.edu/elearning/egallery/radiation-detection-measurement/>

Linear Accelerators: How do they work?:

<https://www.unmc.edu/elearning/egallery/linear-accelerators-how-do-they-work/>

High Dose Rate Brachytherapy Emergency Training:

<https://www.unmc.edu/elearning/egallery/high-dose-rate-brachytherapy-emergency-training/>