Considerations for Virtual Learning:

Basics on Planning, Design & Development.

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Why I am qualified to talk to you today

Biosafety/ Research/ Education Hybrid Person

- Tutor at the Science Learning Center
- Research in honey bee reproductive physiology
- Graduate teaching assistant (LOVED IT)
- Community outreach (talks, workshops, courses)
- Lab Manager of BSL-2 & BSL-3 virology laboratory (VT)
- High School Science Teacher
- Lab Manager-ish of BSL-2, ABSL-3+, and BSL-3Ag (UW)
- Biosafety Trainer (UW)
- Biosafety/ Select Agent/ DURC Trainer and ARO (UW)

Biosafety/SA/DURC Trainer and ARO

In the last 8 years I have…

- Been alternating attending ABSA and the Distance Teaching and Learning Conference (Madison)
- Joined job related ABSA Committees (DLC, SA, Curriculum and Education)
- Attend the teaching and learning symposium (free, UW)
- Attend Active Teaching Labs (free, UW)
- Attended the Digital Pedagogy Lab Summer Institute (Madison)
- Attended the Association for Distance Education and Independent Learning Conference (Madison)
- Earned a Masters Degree in Education and a graduate certificate in Instructional Design (100% on-line)

Did I Find What I Was Looking For?

Ugh..Sorta?

What we all want:

To attend a training or take a course and be given material that can immediately be applied

What we will get:

Examples and Ideas that we need to re-imagine to fit our needs

What I Have to Offer You Today:

- Guide you through a front-end analysis
- Provide you with a basic instructional design method for all training development
- Share with you a few ideas that have been rattling around in my head
- Show you a few self-paced interactive on-line learning modules
- Software demonstrations

Why are you here today?

- Motivation
  - Your program needs to go on-line
  - Need PD points
  - Want to improve
  - Excuse for your partner to cook dinner tonight
- Start with small changes, cut yourself some slack

Front End Analysis

Why is there a need for training?

- Awareness
- Skill Proficiency
  - Filling out a form
  - Handling a needle stick
  - Cleaning up a biohazard Spill
  - Loading and running an autoclave

Front End Analysis: Training Format

Synchronous: Virtual Learning

More like a traditional Classroom

- Students are all on the same schedule
- Class meets with instructor virtually
- Live discussion and Q&A

Asynchronous: Self-paced Learning

- Does not require real-time interaction
- Learners access and complete training and assessments at a time that works for them
- Assignments have deadlines

Front End Analysis: Training Format

Synchronous: Virtual Learning

Pros:
- Active discussion
- Immediate feedback
- Personal interactions

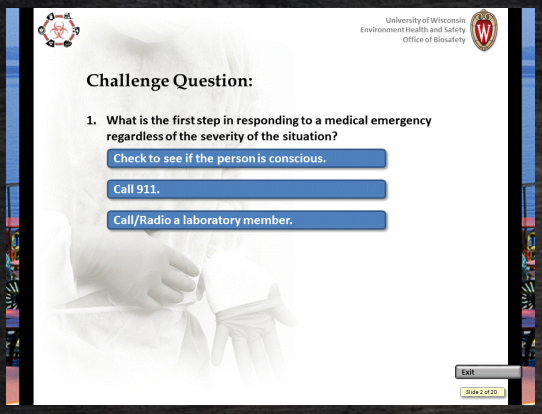
Cons:
- Rigid Schedule
- Technical difficulties (internet)
- How to complete make-ups

Asynchronous: Self-paced Learning

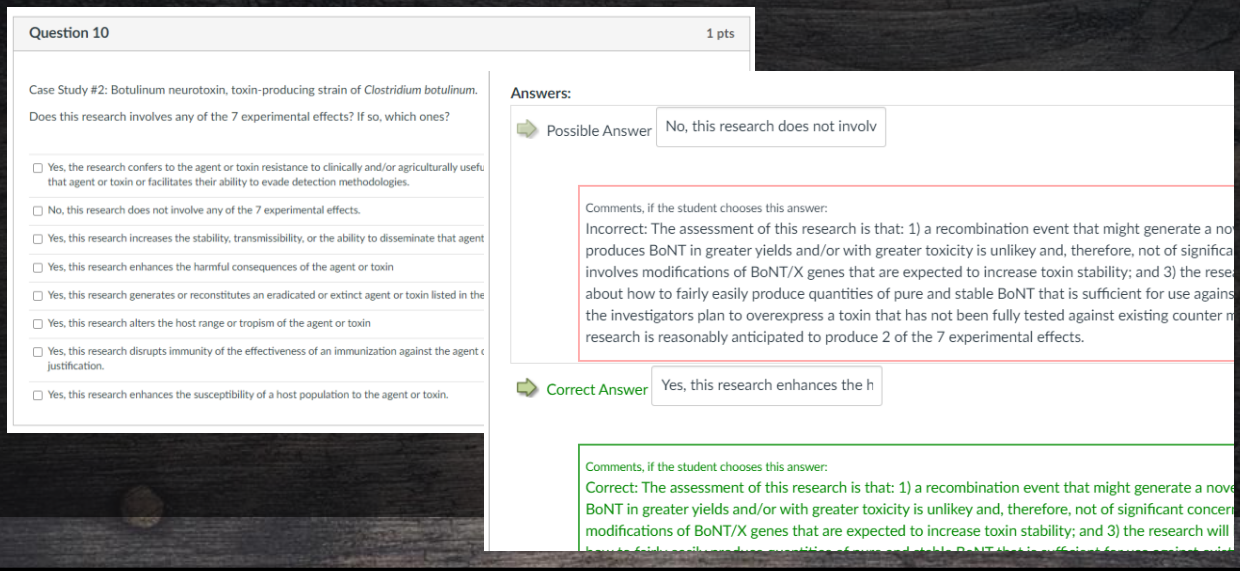
Pros:
- Flexibility/ Convenience
- Quick learners do not have to wait

Cons:
- Isolation
- Hard to be as collaborative
- Have to work in learner feedback

Learner Feedback: Asynchronous



Learner Feedback: Asynchronous



Front End Analysis: Housing the training

Web Conferencing

- Zoom
- WebEx
- GoToMeeting/Webinar
- Microsoft Teams
- Google Meet

Free and Open Source:
- BigBlueButton
- OpenMeetings
- Jitsi

Website

- Talk to your IT folks

Learning Management Systems (LMS)

- Canvas
- Moodle**
- Desire to Learn
- Blackboard
- Absorb

Free and Open Source:
- Talent LMS
- Forma LMS
- OpenOLAT

Open source is a term that originally referred to **open source** software (OSS). **Open source** software is code that is designed to be publicly accessible—anyone can see, modify, and distribute the code as they see fit.

Front End Analysis: Records, Security, Budget

Records Retention

- Do you need to collect data?
  - Name of person
  - Quiz Score
  - Time and Date
- How long can you store the records electronically?
- Do you need to export/print?

Security

- How is the training/data stored?
  - Cloud
  - Software's Server
  - In-house
- Access?
  - Does everyone need an account?
  - Log-in?
  - Guest accounts?

Budget

- What software can you afford?
- Can you find free software?
- Can you afford to hire someone (full/temp)?
- If someone else makes the training, do you know how to make edits?
  - Can you afford to pay for the edits?

Front End Analysis: IT Support

- What software does your institution/ company provide IT support on?
- Publishing and Upload on website/ LMS might take some troubleshooting
- Integration of SCORM might take some troubleshooting/coding
- Have conversations ahead of time with your IT folks to make sure what you want to do will work

Front End Analysis: Who are your learners?

Learner Characteristics:

- Age
- Education
- Job Role
- Experience level
- Comfort with using tech
- Disabilities
- Motivation

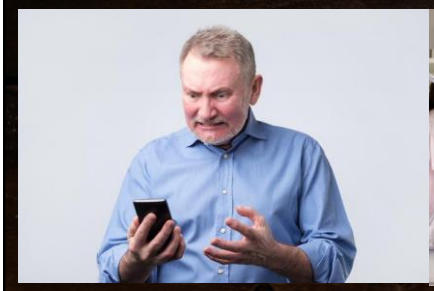
Technology Inventory:

All learners will need access to…

- Internet
- Computer/tablet
- Smart Phone (video & pictures)
- Printer/scanner
- Pencil/pen/paper
- Headset/ microphone/ webcam

Front End Analysis: Realistic Expectations

What is reasonable to ask of your learners?



Extra step of teaching them to use tech and navigate LMS

Objectives Basics/ Goal Analysis:

How to start? Choose your goal and then list all of performances you need from your learners to reach that goal.

IF YOU REMEMBER ANTHING:

- Objectives are related to outcomes of the learners, NOT instruction!
- Do not select tools until you know what you want to accomplish!

Learning Objectives:

Performance or learning objectives should have these THREE components:

1. **Observable action or task** 	Remember List Define Label Recall Select	Understand Describe Explain Locate Restate Recognize	Apply Demonstrate Illustrate Practice Sketch Use	Analyze Calculate Compare Examine Question Solve
2. **Measureable Criterion**	- With 100% accuracy - In thirty seconds or less - Score of 36 on the rubric			
3. **Conditions of the Performance**	- Given the NIH guidelines - Given a content scenario - In a mock laboratory setting	- Using a diagram of the lab - Using all PPE		

Learning Objectives:

Not Great:

-Learners will gain knowledge in Biosafety.
-Learners will understand how to handle an emergency in the lab.
-Learners will show proficiency in putting on a PAPR.

Better:

-From memory, learners will list and define the four controls of biosafety
-Given a list of emergency scenarios, learners can identify which emergencies require an emergency exit through the transfer room

Best:

-After reading and practicing the PAPR SOP, learners will demonstrate assembly, testing, and donning a PAPR with 100% accuracy.

Instructional Design 101: Backward Design

Objective	Assessment	Absorb	Do	Connect
After reading and practicing the PARP SOP, learners will demonstrate assembly, testing, and donning a PAPR with 100% accuracy	Was incorporated when you were writing your objective			

Instructional Design 101:

Objective	Assessment	Absorb	Do	Connect
After reading and practicing the PARP SOP, learners will demonstrate assembly, testing, and donning a PAPR with 100% accuracy	Learners will physically demonstrate assembly, testing, and donning a PAPR (check-sheet will be used for grading)	Learners will read SOP and watch demonstration of the PAPR Process (in-person or video)	Learners will practice all aspects of PAPR assembly, testing, and donning a PAPR	Learners will be asked to write a plan of action of what they would do if their PAPR malfunctioned while in the laboratory, followed by group discussion

Instructional Design 101:

Objective	Assessment	Absorb	Do	Connect
In less than 30 seconds, list the appropriate actions to take based on the color of stack light with 80% accuracy.	Using Kahoot, learner will respond to quiz questions. Questions will appear for 30 seconds.	Stacklight Self-Paced learning module	Practice with knowledge checks/ quiz questions in Learning module Practice quizzing in Kahoot	Identify on laboratory blue-print where the stacklights are located Create a scenario

Assessment Basics:

Don't forget there are LOADS of assessment options:

- Traditional Test/ Quiz
- Writing a story/scenario (give them parameters/ rubric)
- Drawing and/or labeling a diagram
- Video capture of a demonstration or scenario
- Word/ Mind Mapping
- Graphic Organizer/ Flow Chart
- Self / Peer Assessment

Select Response Vs Constructed Response

Learning Activity Ideas

Definitions

List three different websites that define_____

Create your own definition

Compare and Contrast

Research two different _____. Compare and contrast

Training/activities from previous labs/insitutions.

Share your story

Tell of a time when you had a close call in the laboratory and how it has changed your behavior.

If you could give advice to a new person on…

Problem-Based

Create Scenario
Create/Analyze SOP
Analyze Scenario (Different Roles/perspectives)
Build simulator (CYOA)
Interactive Diagram/Image

Using Scientific Articles/ News Stories

Choose one of the three provided articles on LAIs/ Lab Accidents

Identify at least two things you would have done differently…

How could you improve safety in your lab?

_____

** Inactivation Methods
**Glove removal techniques
** Book Chapters
**BMBL
**NIH Guidelines
**OSHA Requirements
**Bloggers
**DIY Science
**Movie Clips
**ABSA TTR

Learning Activity Ideas:

Using the Internet:

-List three websites that provide a definition for _____, please construct your own definition.

-Choose one of the three provided articles on Laboratory acquired infections/ Lab accidents.

Identify at least two things you would have done differently to prevent the incident.

List two things that your lab could do to decrease the like

-Research two different BSCs, compare and contrast the cabinets

Using Module Software:

-Scenario simulator : present problem and provide feedback along the way

Helpful Resources:

Learning Objectives:

- Mager, R. F. (1997). *Preparing instructional objectives: Acritical tool in the development of effective instruction.* Atlanta, GA: CEP Press

Assessments:

- Butler, S.M. & McMunn, N.D. (2006). *A teachers guide to classroom assessment: Understanding and using assessment to improve student learning*. San Francisco, CA: John Wiley & Sons, Inc.

THE INTERNET!!!


QUESTIONS?


Five Minute Break

Software:

Concentrate on your Needs, Abilities, and Time:

- Power Point (Video, MP4, Self-paced Modules)
  - iSpring Presenter (covert to HTML5) Booster for PP
- Audacity (Free audio recording and editing)
- Camtasia (Screen Recorder, Video Editor)
- Captivate (Modules, TOC, Quizzing, interactive, SCORM)
- Articulate Storyline 360 (Course Authoring)
- Group interactivity
  - Google Docs, LMS discussion or other discussion platforms, partner work for feedback

Power Point Modules:

- Create your own buttons
- Insert Action to your buttons
- Save as a power point show (downloadable)
- Use iSpring Presenter to convert to HTML5 (integrated)

Camtasia:

- Record Screen for tutorial
- Record Screen to capture PP animations
- Movement effects of objects
- Import pictures/graphics & video
- Publishing options

Captivate:

- Software Simulation
- Video Demo
- Import PP slides and animations
- Movement effects of objects
- Import pictures/graphics & video
- Import Audio or record audio
- Publishing MP4 options and SCORM Zip files

- Table of Contents
- Quizzing
  - Hot Spot
  - Sequence
- Navigation
- Rollover options
- Drag and Drop
- Zoom and Pan
- Learning Interactions
- Data can be tied into LMS

Contact Me!!

Training brainstorms

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