E-Book Development for Technical Education

NSF ATE Award Number 2000454

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Outline

- Project Background
- Choosing the E-Publishing Platform
- Demo of select E-book components
- Strengths and Weaknesses

What is your background?

- Q1: **Which one of the following options best describes your affiliation?**
- Q2: **Briefly list or describe the primary technology area of interest to you.**
- Q3: **What is your experience with e-learning? Examples includes creating and/or publishing e-books; creating video content; creating content for use on LMS; creating animations**

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Project Background:

Why Vacuum Technology?

- Enabling technology
- 2-year technician programs lack access to suitable textbook resources that support curriculum related to this technology
- Creation of a customized AAS program
- Gap analysis
- Teaching vacuum technology

Project Background:

Lack of Technician-Level Educational Resources

- Textbooks:
  - O'Hanlon
  - Harris
  - Gessert
  - Hata (Out of Print)
- Laboratories:
  - ECC
  - NCC
  - PCC
  - Among others

Choosing the E-Publishing Platform:

Overview of Existing E-Publishing Platforms

- Pressbooks
  Milne Publishing Platform based on Pressbooks
- OER Commons
- OpenStax
- Merlot
- MathBook XML
- Others: see OER Authoring Tools compiled by Michele DeSilva, COCC, and by SUNY Empire State College

Choosing the E-Publishing Platform:

Criteria for Choosing the Platform

- Sustainability
- Functional Requirements
- Ease of Use

Choosing the E-Publishing Platform:

Criteria for Choosing the Platform

- **Sustainability**

  - free or low-cost platform to both develop the resource during the grant project and subsequently provide on-going access after the grant project ends

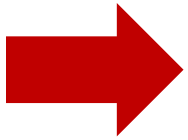
- Functional Requirements

- Ease of Use

Choosing the E-Publishing Platform:

Criteria for Choosing the Platform

- Sustainability
- **Functional Requirements**
- Ease of Use



- self-generated table of contents
- math formulas engine
- embedded videos, animations, simulations
- embedded interactive quizzes
- different publishing formats: Web, EPUB, PDF

Choosing the E-Publishing Platform:
Criteria for Choosing the Platform

- Sustainability
- Functional Requirements
- **Ease of Use**

- Developer learning curve
- Developer support
- User experience

Choosing the E-Publishing Platform:

Criteria for Choosing the Platform

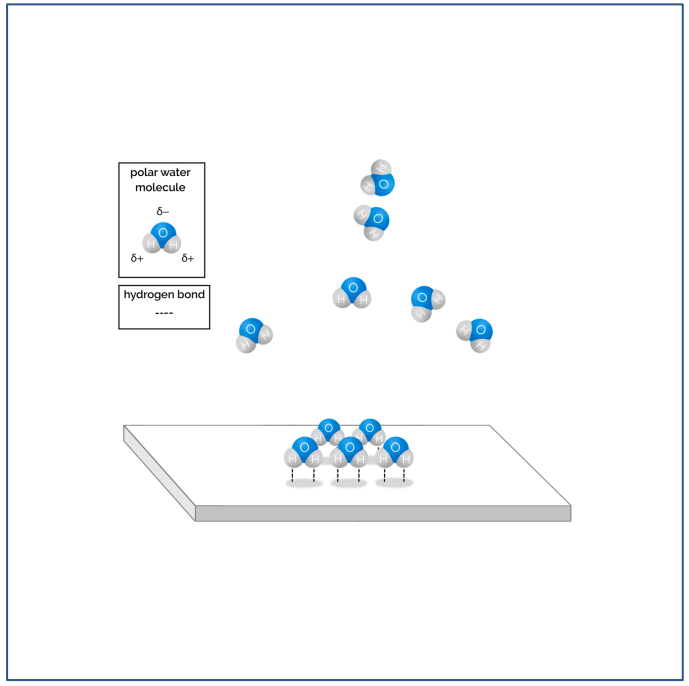
- Sustainability
- Functional Requirements
- Ease of Use

Milne Publishing at SUNY Geneseo Library

Demos of Select E-Book Components:
Animations

- Finished Product View:

Animation Example



Editing View:

Creating Animation Using GIF free maker

What Other E-Book Components would you like to see? Pick top 3.

- TOC and Learning Objectives
- Sample text in editing view
- Videos
- Figures
- Math formulas
- Interactive Quizzes
- Licensing

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Demos of Select E-Book Components:

TOC and Learning Objectives

- Finished Product View:

TOC and Learning Objectives

Editing Views:

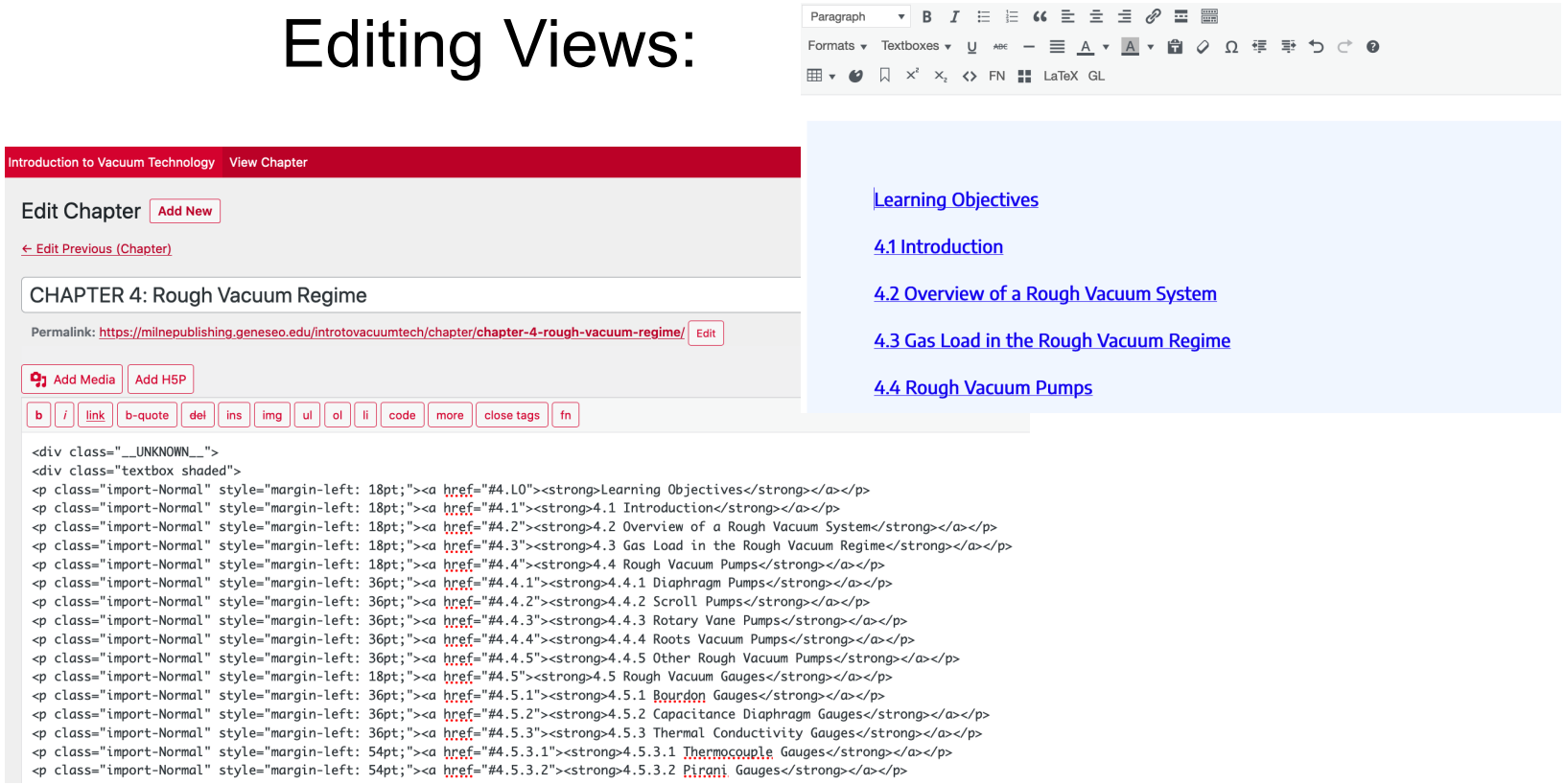
Demos of Select E-Book Components:

TOC and Learning Objectives

- Finished Product View:

TOC and Learning Objectives

Editing Views:



Demos of Select E-Book Components:

Sample Text in Editing View

- Finished Product View:

Sample text

Editing View:

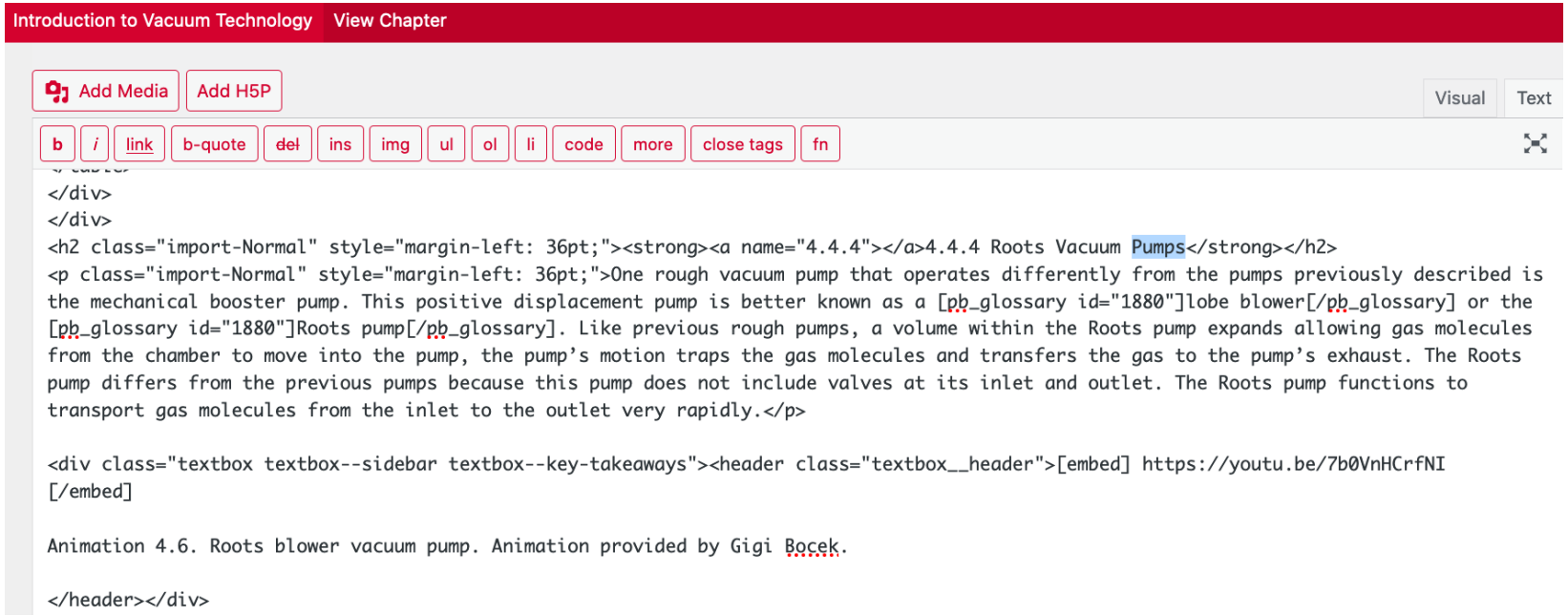
Demos of Select E-Book Components:

Sample Text in Editing View

- Finished Product View:

Sample text

Editing View:



Demos of Select E-Book Components:

Videos

- Finished Product View:

Video Example

Editing View:

Demos of Select E-Book Components:

Videos

- Finished Product View:

Video Example

Editing View:

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src="https://milnepublishing.geneseo.edu/app/uploads/sites/248/2021/05/Figure_3_18.png" alt="" width="500" /> Figure 3.18. A Pyrex bell
jar chamber from Figure 3.17 covered by the metal protective shield/guard. Photo provided by Richard Hill, SUNY Erie Community College.
[/caption]
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Demos of Select E-Book Components:
Figures

- Finished Product View:

Figure Example

Multimedia View:

Multimedia View

Demos of Select E-Book Components:
Figures

- Hint: Upload figures with the highest resolutions. Otherwise, PDF version of the e-book may have blurry images.

uploaded with medium resolution

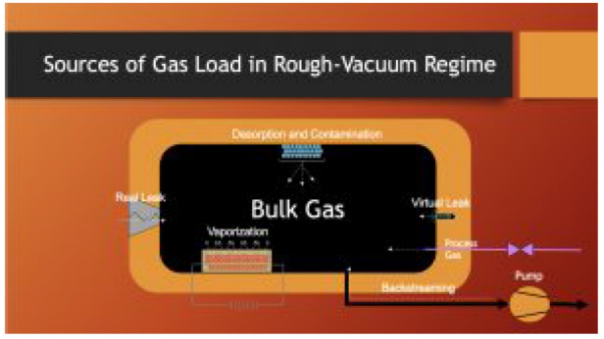

Figure 3.1. Sources that contribute to gas load in the rough-vacuum regime. Figure provided by John Laswell, Normandale Community College.

uploaded with the highest resolution

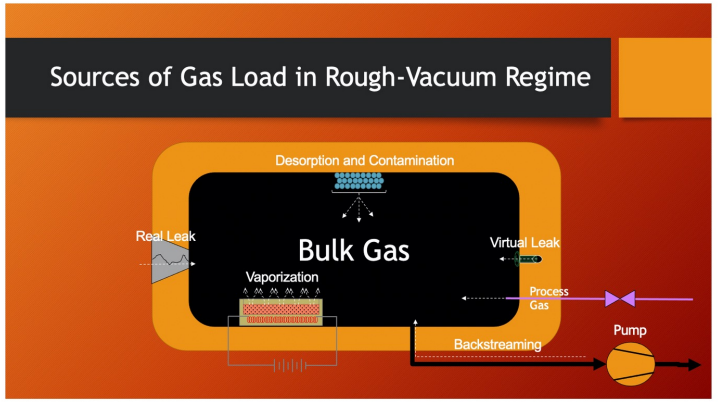

Figure 3.1. Sources that contribute to gas load in the rough-vacuum regime. Figure provided by John Laswell, Normandale Community College.

Demos of Select E-Book Components:
Math Formulas

- Finished Product View:

Sample math formula

Editing View:

Demos of Select E-Book Components:
Math Formulas

- Finished Product View:

Sample math formula

$$t = \frac{V}{S_{eff}} ln\left(\frac{P_i - P_{ult}}{P_f - P_{ult}}\right) \qquad (4.2)$$

Editing View:

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<div style="text-align: center;">[latex]\begin{equation} t = \frac{V}
{S_{eff}} \thinspace ln \left( \frac {P_i - P_{ult}}{P_f - P_{ult}} \right)
\qquad \qquad (4.2) \end{equation} [/latex]</div>
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Demos of Select E-Book Components:

Interactive Quizzes

Interactive Quiz Example

Demos of Select E-Book Components:

Licensing

Licensing Example

Resource link to the comprehensive guide on attribution and licensing with Creative Commons: https://designshack.net/articles/business-articles/the-simple-guide-to-creative-commons-resources/

Strengths and Weaknesses:

E-Book Development Using Milne Publishing Platform (PressBooks)

Strengths	Weaknesses
Self-generated TOC	Chapter's TOC allows for only level 1 and level 2 titles
Embedded interactive quizzes with different types of questions	Larger animations must be first recorded as videos and uploaded to Youtube before being embedded
Milne Publishing at SUNY Geneseo committed to house the resource at no cost indefinitely	One of the authors must be employed at SUNY to qualify for the E-book development assistance by Milne library staff
Adequate math formulas engine	No built-in SME review platform
Web, EPUB and PDF formats are available	
Ability to embed animations and simulations	
Good level of support from SUNY Geneseo library staff	

How to get started with E-book publishing

- Identify functionality that your E-book should have:
  - TOC
  - animations and/or simulations
  - math formulas
  - interactive components and testing
  - ease of embedding into LMS
  - E-book or modular curriculum formats
  - publishing format and availability on different types of devices
  - licensing of the content

  Link to the comprehensive guide to Creative Commons and description of the six available Creative Commons licenses: https://designshack.net/articles/business-articles/the-simple-guide-to-creative-commons-resources/

How to get started with E-book publishing

- Identify appropriate publishing platform based on:

  - Functionality requirements
  - Ease of use
  - Sustainability requirements and budget constraints

  Links to OER Authoring Tools compiled by Michele DeSilva, COCC, and by SUNY Empire State College

- Determine the attribution license

  Link to the comprehensive guide to Creative Commons and description of the six available Creative Commons licenses: https://designshack.net/articles/business-articles/the-simple-guide-to-creative-commons-resources/

How to get started with E-book publishing

- Enlist help with navigating the E-publishing process
- Enlist students to help generate animation, simulation, and video content
- Use free GIF creation engines to build simple animations
- Use low-cost off-the-shelf video editing software to put together simple video content. **Hint: ask for educational pricing!!!**

List of available OER Production Resources was compiled by SUNY Buffalo State College and included in your resource package.

Our Questions to You:

- What impact would a resource like the one we have described have on your students' experience in your program?
- What impact would a resource like the one we described have on an instructor's ability to teach their course?
- If you had access to a resource similar to the one described here, how likely would you be to integrate it into your course?

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Your Questions to Us?

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