

Web Based Learning System
RockEd
Plastic: Refuse, Reduce, Reuse and Recycle

[https://sites.google.com/zips.uakron.edu/
recycle-wbls-summer-19/home](https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home)

Douglas Blakeny, Marjorie Hartleben,
Margaret Kreider, Nikki Smalley
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The University of Akron

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Design Document

A. BACKGROUND INFORMATION

The project will focus on the concept of recycling – an important socioeconomic and environmental aspect in the modern world. The project will create awareness regarding the methods and strategic approaches about recycling: how to reduce waste: and how to implement it within homes. The aim here is to enhance the awareness levels, participation, and thus the volume of recycling accompanied with a general reduction of waste in society.

The WBLS will help people better understand the reasons of why waste reduction is so important. It is best to first reduce, reuse and then recycle. We want to demonstrate proper recycling by showing the steps to take, what can and cannot be recycled, and the impact it has on the environment. The WBLS tools used will employ videos, audios, and text to provide information and analysis regarding how recycling will work. For example, YouTube videos will be used as a platform to provide presentations (visual and video) to demonstrate ways to carry out recycling. It will also focus on using graphics along with local resource pages to establish a deeper understanding of recycling as well as its potential for communal good.

B. PROBLEM ANALYSIS

1. What are the problems to solve?

Humans produce too much non-biodegradable waste. This waste harms the environment. The goal is to help the general population explore ways they can reduce their waste and to recycle the products they have in the proper way. People need to be motivated and educated in the ways of recycling.

2. What are the gaps between actual and optimal learning outcome/performance?

| Actuals | Problem (Gaps) | Optimals |
|--------------------------------|---|--|
| Too much waste on Earth | Reduce waste produced | Balance in nature |
| People don't recycle | Not motivated to bother | People will see the need to recycle. |
| People use what is convenient. | Not educated in the small ways to reduce waste. | People will be proactive and reduce their waste. |

| | | |
|--|---|--|
| People recycle only some of their waste. | Not educated in the proper way to recycle and/or where to recycle products. | People will recycle all waste in the proper way. |
|--|---|--|

3. Describe your ideas of how the problem/gaps can be resolved

- Three different levels of action included in the WBLS. Information, local resources, end reward for reaching a higher level of knowledge (certification or some title)
- Motivate the population by showing videos of how waste harms environment.
- Educate population on ways to reduce waste in small ways by showing impact using data.
- Enter zip code to get specific locations for taking recycling materials.
- Short quizzes for formative assessment.
- Printable/download information sheet
- Ways to start recycling program

4. Describe your viewpoint of whether WBLS is an appropriate way to solve the problem.

The purpose of this web-based learning system would be three fold:

1. To give quick information on where to take recyclables.
2. To educate and motivate people to reduce and recycle.
3. To recruit people to become a leader in their community for recycling and reducing waste on the planet.

5. If WBLS is a possible solution, how will WBLS help?

Pollution and non-biodegradable waste is a global problem. The world population needs to be educated on the devastating results of pollution. Using a WBLS would be a viable solution to educate the public about this problem because the WBLS would be accessible to all people who have internet access. The WBLS would be available at any time on any day of the year. The information that is presented will be able to be updated easily and frequently to reflect the changing requirements for recycling because the content is in a digital format. The web-based learning system will be able to reach a vast amount of the population and hopefully to motivate people to be mindful of the waste that is created and left on this planet.

C. INSTRUCTIONAL SITUATION ANALYSIS

- a. The Learning Goal & Outcome Level & Instructional Context (including information about the resources, allocation and competencies of personnel, learner location and technology/equipments.)

At the end of the instruction, the learner will be able to understand why it is important to reduce solid waste and how to recycle properly by using the learning outcome Gagne's Categories of Learning for the Cognitive Domain. Upon completion of the instruction, the learner will take an exam consisting of 20 mixed questions that include true or false, multiple choice, and matching.

Gagne's 9 Events of Instruction in eLearning:

- 1. Create an attention-grabbing introduction.**
 - a. We will use an infographic with statistics about how much plastic waste is harming the earth, we will show pictures of wildlife that is being harmed by it.
- 2. Inform learner about the objectives of the eLearning course.**
 - a. The learner will use the information and activities that are delivered through the WBLS to gain a better understanding of how to refuse, reduce, reuse, and recycle plastics.
- 3. Stimulate recall of prior knowledge.**
 - a. There will be stopping points within and between each learning module for understanding content such as a quiz, a discussion, or an activity.
- 4. Create goal-centered eLearning content.**
 - a. Each of the four main ideas; refuse, reduce, reuse, and recycle will be broken down into their own learning module that will include definitions, learning activities and assessments throughout.
- 5. Provide online guidance.**
 - a. We will provide a help tab for frequently asked questions to help learners if they are having issues and also an email address to
 - i. contact us for help. Each module will follow the same basic format and flow to give users a sense of comfort in knowing what they should expect after completing the first module.
- b. Practice makes perfect.**
 - i. Learners will have multiple opportunities to show their knowledge throughout each module, at the end of each module, and through the final assessment. They will do this

through games, quizzes, discussions, activities, and hands on experiences.

c. Offer timely feedback.

- i. Written feedback will be given through quiz and test results, discussion responses, and outcomes of activities and experiences.

d. Assess early and often.

- i. We will offer a pre-assessment for learners to gauge their general knowledge before they participate in the WBLS so they can compare it to their final results. There will also be assessments throughout.

e. Enhance transfer of knowledge by tying it into real world situations and applications.

- i. We would encourage learners to take what they have learned, apply it to their own lives and report back to share their experiences. We will also share examples of our own, and supply a blog where the discussion could continue to share new ideas and resources.

Instructional Context

| <u>Main elements</u> | <u>Aspects</u> |
|--|--|
| Organizational Infrastructure | |
| Allocation and Competencies or personnel | <ul style="list-style-type: none"> • Graphic designer • Teacher • Master recycler • Technology Support Staff |
| Learner location and technology | Home, school, library, work |

b. For Learner Analysis, you will need to clearly address learners' characteristics.

Learner Background:

| <u>Main elements in learner analysis</u> | <u>Aspects</u> |
|--|----------------|
| | |

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|----------------------------|---|
| General characteristics | <ul style="list-style-type: none"> • Gender - All • ethnicity/race - All • Age - 12 and older • General ability - beginner • Education level - 6th grade and above • Work experience - All • Reading level - 6th grade |
| Motivations | <ul style="list-style-type: none"> • Interest in the environment, being green • Curious about what is going on • Passionate about reducing waste, recycling, reusing, upcycling, etc. |
| Prior knowledge | <ul style="list-style-type: none"> • Content familiarity |
| Communication skills | <ul style="list-style-type: none"> • Written |
| Technical skills | <ul style="list-style-type: none"> • Basic computer skills • Using a mouse and keyboard • Using the internet/navigation • Comfort level - beginner • Threaded discussions |
| Abilities and disabilities | <p>Consider:</p> <ul style="list-style-type: none"> • Visual impairments • Hearing disabilities • Learning disabilities |

c. Instructional Content Analysis

Learning content:

Learning Task Map:

Major steps needed to achieve goal?

1. Reduce the amount of plastic waste you produce
2. Reuse plastic items when you can
3. Recycle plastic correctly

Subskills needed to achieve each step?

1. Reduce the amount of plastic waste you produce
 - a. Refuse to use single use plastic items (i.e. convenience packaging)
 - b. Invest in reusable straws, food storage containers, grocery bags, etc.
 - c. Buy in bulk
2. Reuse plastic items when you can

- a. Seek out ways to reuse plastic items
- 3. Recycle plastic correctly
 - a. Follow the guide from your local recycling center - not all plastics are recyclable and the numbered triangle codes on the packaging are not always an indicator of what is accepted
 - b. If the plastic product is accepted, make sure it is clean, dry, and empty before tossing it into the bin
 - c. Plastic grocery bags must be returned to the store - Do not put them with curbside pickup
 - d. Remember - when in doubt, throw it out

Entry skills needed to begin instruction?

- 1. Definitions of refuse, reduce, reuse, recycle
- 2. Some experience with the concept of recycling
- 3. Basic computer skills, internet navigation skills, communication skills

What are the subskills?

- 1. Definitions of refuse, reduce, reuse, recycle
 - a. Read and understand the definition for each of the four main terms
- 2. Some experience with the concept of recycling
 - a. Experience with concept of recycling such as you have heard of it, read about it, saw it in action, participated in it, etc.
- 3. Basic computer skills, internet navigation skills, communication skills
 - a. Operate a computer keyboard and mouse
 - b. Navigate the internet and a website
 - c. Express your thoughts clearly through writing

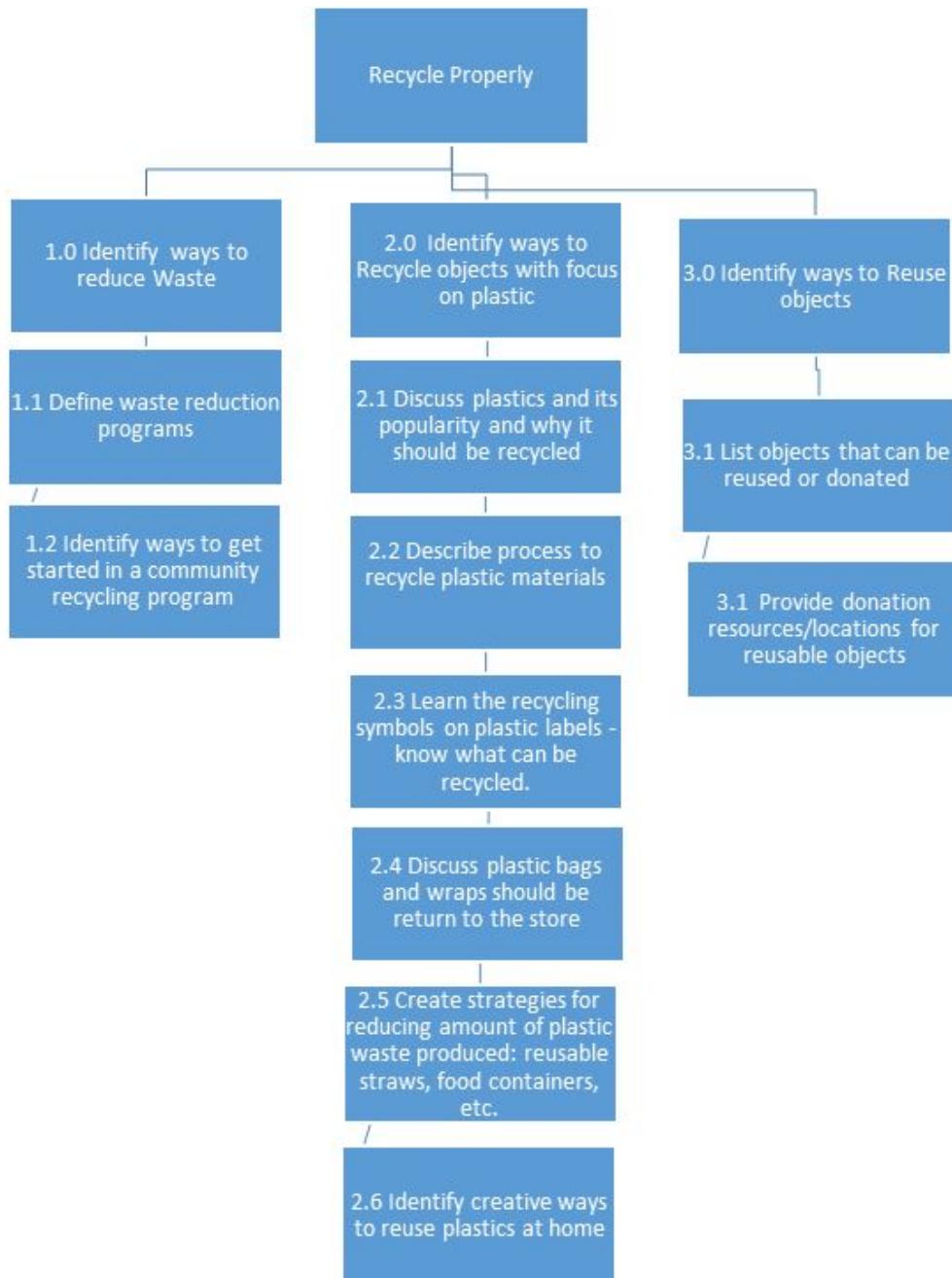
What is the outcome level for the skill?

100% knowledge and skill based

What are the relationships of the pre reqs to each other?

You have to know how to use the computer to access the WBLS to learn the definitions to build upon what you already know or don't know about recycling to successfully complete the activities in the WBLS to reach the goal.

2) Develop a Learning Task Map (LTM) to illustrate relationships among the primary steps/skills/concepts to structure the best sequence for learning the skills/concepts.



3) Create Task-Objective-Assessment Item Blueprint (TOAB)

Task Objective Assessment Blueprint

| Learning Task Item Objectives | Outcome Level | Assessment Item |
|--|--------------------------------------|---|
| Recycle Properly | Expectancy | |
| 1.0 Identify ways to reduce waste | Intellectual skill: Concrete Concept | Quiz after watching video on reducing waste |
| 1.1 Define waste reduction programs | Intellectual skill: Defined concept | |
| 1.2 Identify ways to get started in a community program | Intellectual skill: Concrete concept | Participants post ideas using PadLet. |
| 2.0 Identify ways to recycle objects | Intellectual skill: Concrete Concept | |
| 2.1 Identify plastics and its popularity and why it should be recycled | Intellectual skill: Concrete concept | After watching videos on plastic impact to the environment, participant will gather data in a spreadsheet and create some type of graph to represent different types of plastic in the environment. |
| 2.1 Classify types of recyclable objects | Intellectual skill: Defined concept | Online Sorting Activity after watching/reading information on different types of plastic. |
| 2.2 Describe process to recycle plastic | Intellectual skill: Concrete Concept | |

| | | |
|---|---|--|
| 2.3 Identify the recycling symbols on plastic labels | Intellectual skill: Concrete concept | Matching activity using Google Quiz. |
| 2.4 Classify why plastic bags and wraps should be returned to store | Intellectual skill: Defined concepts | Students List local stores or organizations who collect plastic bags. |
| 2.5 Create strategies for reducing amount of plastic waste produced: reusable straws, food containers, etc. | Intellectual skill: Generate | Provide scenarios where participant will give ideas on what should be done to reduce waste. |
| 2.6 Identify creative ways to reuse plastics at home | Intellectual skill:Concrete Concept | Use Padlet for participants to post ideas |
| 3.0 Identify ways to reuse objects | Intellectual skill:Concrete Concept | Discussion Board pros and cons to re-using vs. reducing? |
| 3.1 List objects that can be reused or donated | Verbal information | Create video/slideshow showing items that can be reused. Provide a Blog to post ideas about how to move forward? |
| 3.2 Provide donation resources/locations for reusable objects | Intellectual skill: Concrete concept | Interactive Map |

Evaluation Plan

A. Formative Evaluation Plan

a. General Evaluation Information:

Purpose of the Evaluation

The increasing importance of WBLS means that more students and teachers are exposed to these platforms in their respective day-to-day learning and teaching processes. As a result, this formative evaluation aims to assess some crucial aspects of the learning platforms to establish their importance and effectiveness. In this regard, the evaluation will focus on the following importance areas: **Accessibility, Communication, Content, and Flexibility** Of the prototype platform.

Timeframe

Once the prototype platform is in place, the evaluation will take 3 weeks to evaluate the four aspects (Accessibility, Communication, Content, and Flexibility) for students, which is crucial for the learning approach.

Evaluators

This formative evaluation will be carried out by students. In this regard, students will be allowed access to the prototype platform and thus use it for specific learning purposes. Different students will have different answers to the questions above. However, the overall responses will help establish the accessibility, communication, content, and flexibility of the prototype platform chosen.

Participants

The formative evaluation will include teachers and students. Both of them will be used as test subjects in evaluating the prototype.

Types of Method(usability test, expert review)

The formative evaluation will focus on the Usability test. This will aim to establish the capacity, ease-of-use, and effectiveness of the prototype. The following steps will be employed to complete the usability test.

- The prototype will be availed to the test subjects (students and teachers).
- They will be allowed to use the prototype for a broad range of services within its portfolio.
- The users will be surveyed for key responses to the questions above regarding accessibility, communication, content, and flexibility.
- The results will be analysed and any weaknesses, defects, or limitations addressed.

b. A list of the Materials to be examined.

The following aspects of the prototype platform will be examined:

- The bandwidth of the prototype
- The cost of accessing the prototype platform
- The ease of accessing or installing accompanying and required software and hardware
- Communication and Interaction capacity of the prototype platform
- Limitations to the communication and interaction among users

- The type of content available on the prototype platform
- The ease of use and re-use of the content, modules, and ability to share

c. A Table of Types of Methods and Tools for Formative Evaluation:

| Evaluation Criteria | Sample Questions | Methods | Tools |
|----------------------|---|----------|--|
| Accessibility | a. What type of bandwidth is required to properly view the available content? b. What is the cost of accessing the prototype? c. What is the difficulty or ease of installing the required software and hardware? | Feedback | Surveys (questionnaire and Interviews) |
| Communication | i. How well can students (users) communicate with each other on the prototype platform? ii. What limitations face the communication processes on this medium? iii. How effectively is feedback provided? iv. How isolated do users (students or teachers) feel compared to the traditional (non-WBLS) methods? | Feedback | Surveys (questionnaire and Interviews) |

| | | | |
|--------------------|---|----------|--|
| Content | i. What type of content is delivered to users? ii. How can interactivity and multimedia tools be used? | Feedback | Surveys (questionnaire and Interviews) |
| Flexibility | i. What is the ease of re-using educational modules? ii. What is the flexibility among users in viewing information at their own time, pace, place, and order? | Feedback | Surveys (questionnaire and Interviews) |

B. In the Preliminary Summative Evaluation Plan, you will try to investigate the overall value of the WBLS after it is implemented for a time period.

a. General Evaluation Information:

| | Formative | Summative |
|--------------|---|---|
| Timeframe | Conducted before and during implementation | Conducted after implementation |
| Purpose | To review if learning is taking place during modules | To compare the knowledge that was gained from the beginning to the end |
| Evaluators | Subject matter experts and learners | Learners |
| Participants | English speaking learners who want to learn more about refusing, reducing, reusing, and recycling plastic | English speaking learners who want to learn more about refusing, reducing, reusing, and recycling plastic |

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| Types of method (i.e. survey, interview, etc.) | Questionnaire and quiz | Test |
|--|------------------------|------|

b. A list of the Materials to be examined.

Materials to Be Examined

| | |
|---------------------|---|
| Content | Objectives |
| | Instructional Strategies |
| | Activities (quizzes, etc. learning assessments) |
| | |
| Prototype & Website | Navigation |
| | Bandwidth & Ease of use |
| | |

c. A Table of Preliminary Planning for Summative Evaluation: This table should include evaluation criteria, sample questions, data resource. **At this point, you don't necessary address what method or tools you will use to conduct the summative evaluation, but you need to at least have some ideas what kind of data you will collect and what are the data sources.**

Preliminary Planning for Summative Evaluation

| Evaluation Criteria | Main Questions | Data Sources |
|---------------------|---|----------------------------|
| Effectiveness | Do students believe the course was worth taking | Student Survey |
| Efficiency | How long did students take to participate and/or did they finish the entire course? | Student start/finish times |
| Content | Did the activities promote learning? | Student Survey |
| Appeal | Is the content interesting? | Student Survey |

Instructional Strategy Plan

Overview of Refuse, Reduce, Recycle, Reuse WBLs Instructional Strategy Plan

| Orientation to Learning | Instructional Strategies |
|--------------------------|---|
| Overview | <ul style="list-style-type: none"> ● Learners will be introduced to the WBI by the following: ● A welcome statement explaining the effect of waste materials on the environment using videos and info-graphics. ● Learners will be encouraged to proceed through each unit learning about different ways to refuse, reduce, recycle and reuse items that harm the environment, specifically plastic. ● Learners will be motivated to start or continue to be mindful of the items that are discarded in their lives. ● Learners will create a final project and share with others. |
| Objectives | <ul style="list-style-type: none"> ● Students will identify four ways to refuse plastics in their everyday life. ● Students will design a plan to reduce their plastic waste. ● Students will research and design a recycling plan for their home. ● Students will identify the plastic items that are reusable and one way to reuse the plastic items. |
| Relevance of Instruction | <ul style="list-style-type: none"> ● Learners will be shown through videos and pictures the effect of waste on the environment. ● Learners will be given data showing their impact of disposing of waste they have on the environment. |

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| Assist learner recall | <ul style="list-style-type: none"> Learners will be asked to share recycling experiences in a discussion post. Learners will take a pre-assessment measuring knowledge on waste and recycling. |
| Directions | <ul style="list-style-type: none"> Directions and procedures will be posted on each Module home page. There will be a button to direct user to proceed to the next lesson. A site map will be provided. |
| Instruction on the Content | |
| Present Content | <ul style="list-style-type: none"> Content will be delivered using videos, text, pictures and info graphics. Links to other resources will be provided Scenarios will be provided Discussion boards Games Presentations Resource maps Guest speakers |
| Learning Cues | <ul style="list-style-type: none"> Graphics and or videos will guide learner Highlighted or bold text. Links will be in blue and underlined Resources will be marked. |

| | |
|--------------------------------|---|
| Practice | <ul style="list-style-type: none">• Games• Surveys• Virtual field trips• Reflections on case studies/scenarios• Projects• Quizzes• Discussion posts |
| Feedback opportunities | <ul style="list-style-type: none">• Discussion board posts• Feedback from automated surveys/questions/quizzes• Instructor feedback |
| Review and Close Unit | <ul style="list-style-type: none">• Provide overview of material• Restate goals and objectives• Review previous lessons during unit.• Exit ticket/ auto graded Google Quiz. |
| Measurement of Learning | |

| | |
|-------------------------------------|---|
| Assess performance | <ul style="list-style-type: none"> • There will be opportunities in each unit for formative assessment using various items. • Quizzes • Surveys • Discussion Posts • Reflections in online journal |
| Performance Scores | <ul style="list-style-type: none"> • Learners will be provided results electronically after completion of each assessment. • Instructor will provide scores • Learner will earn certificate for completing summative assessment. |
| Summary and Close | |
| Enhance learning | <ul style="list-style-type: none"> • Resources will be provided for more in-depth knowledge of recycling. • Suggestions will be provided on steps to create a community recycling program. |
| Remediation | <ul style="list-style-type: none"> • Learners will be directed to review material. • Learners will be given opportunity for differentiated assignments. |
| Provide opportunities for retention | <ul style="list-style-type: none"> • Learners will have opportunity to review and repeat activities and assessments. • Resources will be provided for learner to print informational pamphlets. |

Unit 1: Refuse Instructional Strategy Plan

| Orientation to Learning | Instructional Strategies |
|-----------------------------------|--|
| Overview | <ul style="list-style-type: none"> ● Students will progress through a series of 4 lessons. ● Each lesson will follow the format of: Define, Identify, Activity and Exit Ticket. ● Topics covered in this unit will be: ● Impact of Plastic on Environment ● Alternatives to Plastic ● Calculation of personal Impact ● Life Cycle of Plastic. |
| Objectives | <ul style="list-style-type: none"> ● Students will identify 4 ways to refuse plastics in their everyday life. |
| Relevance of Instruction | <ul style="list-style-type: none"> ● Students will view video on plastics and the environment.. ● Students will be shown a graphic showing harm to environment. |
| Assist learner recall | <ul style="list-style-type: none"> ● Students will list different ways they refuse things in their lives. ● Students will discuss how they refuse to do something. |
| Directions | <ul style="list-style-type: none"> ● Students will start with Unit 1 Refuse home page. ● They will proceed through the four lessons, in order 1.2, 1.2, 1.3, 1.4. ● After each lesson, a type of exit ticket will be presented to gather formative data. ● The students should complete one lesson per day. |
| Instruction on the Content | |

| | |
|--------------------------------|--|
| Present Content | <p>Learning Objectives:</p> <p>1.1 Students will list 3 major impacts of plastic on the environment.</p> <p>1.2 Students will calculate their plastic impact on environment.</p> <p>1.3 Students will list 4 alternatives to plastic products.</p> <p>1.4 Students will create an infographic showing the life cycle of plastic.</p> <ul style="list-style-type: none"> • The content will be provided using videos, text, graphics, relevant articles and online resources • Discussion boards • Conferences with experts |
| Learning Cues | <ul style="list-style-type: none"> • Graphics • Organizers • Bold type • Color • Directions |
| Practice | <ul style="list-style-type: none"> • Sorting activities • Matching activities • Games • Exit tickets |
| Feedback opportunities | <ul style="list-style-type: none"> • Auto graded quizzes • Instructor interaction • Peer discussion |
| Review and Close Unit | <ul style="list-style-type: none"> • Each lesson will have a wrap up and exit ticket • Restate the lesson objectives • Checklists • Rubrics |
| Measurement of Learning | |

| | |
|-------------------------------------|---|
| Assess performance | <ul style="list-style-type: none">• Each lesson will have an exit ticket for formative assessment• Each lesson will have an activity for practice and feedback |
| Performance Scores | <ul style="list-style-type: none">• Scores will be available online• Peer feedback will be during discussions.• Instructor will provide scores. |
| Summary and Close | |
| Enhance learning | <ul style="list-style-type: none">• Each lesson will have differentiation activities built in. |
| Remediation | <ul style="list-style-type: none">• Students will have the opportunity to revisit material and resubmit assessments for better grade. |
| Provide opportunities for retention | <ul style="list-style-type: none">• Students will have artifacts from each unit to refer back to. |

Unit 2: Reduce Instructional Strategy Plan

| Orientation to Learning | Instructional Strategies |
|-----------------------------------|--|
| Overview | <ul style="list-style-type: none"> ● Students will progress through a series of 4 lessons. ● Each lesson will follow the format of: Define, Identify, Activity and Exit Ticket. ● Topics covered in this unit will be: ● 2.1 Define Solid Waste ● 2.2 Identify Waste ● 2.3 Plan how to Reduce Waste ● 2.4 Resources on Reducing Waste |
| Objectives | <p>Students will design a plan to reduce their plastic waste.</p> |
| Relevance of Instruction | <ul style="list-style-type: none"> ● Students will read relevant article about solid waste. ● Students will engage in discussion. |
| Assist learner recall | <ul style="list-style-type: none"> ● Students will share their knowledge in the discussion about waste management. |
| Directions | <ul style="list-style-type: none"> ● Students will start with Unit 2 Reduce home page. ● They will proceed through the four lessons, in order 2.1, 2.2 ,2.3, 2.4, ● After each lesson a type of exit ticket will be presented to gather formative data. ● The students should complete one lesson per day. |
| Instruction on the Content | |

| | |
|--------------------------------|---|
| Present Content | <p>Learner Objectives</p> <p>2.1 Students will learn 5 ways to manage plastic waste.</p> <p>2.2 Students will identify the different symbols for plastic.</p> <p>2.3 Students will calculate their personal plastic waste.</p> <p>2.4 Students will post 5 different resources about reducing plastic waste</p> <ul style="list-style-type: none"> • The content will be provided using videos, text, graphics, relevant articles and online resources • Discussion boards • Conferences with experts |
| Learning Cues | <ul style="list-style-type: none"> • Graphics • Organizers • Bold type • Color • Directions |
| Practice | <ul style="list-style-type: none"> • Sorting activities • Matching activities • Games • Exit tickets |
| Feedback opportunities | <ul style="list-style-type: none"> • Instructor feedback • Auto Graded quiz |
| Review and Close Unit | <ul style="list-style-type: none"> • Each lesson will have a wrap up and exit ticket • Restate the lesson objectives • Checklists • Rubrics |
| Measurement of Learning | |

| | |
|-------------------------------------|---|
| Assess performance | <ul style="list-style-type: none">• Each lesson will have an exit ticket for formative assessment• Each lesson will have an activity for practice and feedback |
| Performance Scores | <ul style="list-style-type: none">• Scores will be available online• Peer feedback will be during discussions.• Instructor will provide scores. |
| Summary and Close | |
| Enhance learning | <ul style="list-style-type: none">• Each lesson will have differentiation activities built in. |
| Remediation | <ul style="list-style-type: none">• Students will have the opportunity to revisit material and resubmit assessments for better grade. |
| Provide opportunities for retention | <ul style="list-style-type: none">• Students will have artifacts from each unit to refer back to. |

Unit 3: Recycle Instructional Strategy Plan

| Orientation to Learning | Instructional Strategies |
|-----------------------------------|---|
| Overview | <ul style="list-style-type: none"> ● Students will progress through a series of 4 lessons and 1 resource page.. ● Each lesson will follow the format of: Define, Identify, Activity and Exit Ticket. ● Topics covered in this unit will be: ● What is recycling ● Learning the different symbols on plastic ● Learn history and impact of plastic ● Identify monetary and environmental impact of recycling plastic. |
| Objectives | <p>Students will research and design a recycling plan for their home.</p> |
| Relevance of Instruction | <ul style="list-style-type: none"> ● Students will be shown a video showing solid waste processing. |
| Assist learner recall | <ul style="list-style-type: none"> ● Students will engage in an icebreaker activity about recycling |
| Directions | <ul style="list-style-type: none"> ● Students will start with the Unit 3 Recycle home page. ● They will proceed through the 5 lessons in order 3.1, 3.2, 3.3, 3.4, 3.5 ● They will engage in all activities and watch any videos. ● They will participate in the exit ticket that will be at the end of each lesson. ● The students will complete one lesson per day. |
| Instruction on the Content | |

| | |
|--------------------------------|---|
| Present Content | <p>Learning Objectives:</p> <p>3.1 Students will write informational short essay and cite evidence about plastic waste.</p> <p>3.2 Students learn the history of plastic and will list the pros and cons of using plastic</p> <p>3.3 Students will identify different symbols related to plastic..</p> <p>3.4 Students will identify the monetary and environmental cost of plastic recycling</p> <p>3.5 List of resources for recycling.</p> <ul style="list-style-type: none"> • Content will be provided using text, articles, videos, graphics and links to websites. • Peer discussions • Expert conferences |
| Learning Cues | <ul style="list-style-type: none"> • Graphics • Organizers • Different text weights and fonts • Color |
| Practice | <ul style="list-style-type: none"> • Activities such as games • Quizzes • Discussion boards • Research • Exit tickets |
| Feedback opportunities | <ul style="list-style-type: none"> • Instructor will provide feedback. • Auto graded quizzes • Peer direction |
| Review and Close Unit | <ul style="list-style-type: none"> • Each lesson will have a wrap up and exit ticket • Restate the lesson objectives • Checklists • Rubrics |
| Measurement of Learning | |

| | |
|-------------------------------------|---|
| Assess performance | <ul style="list-style-type: none">• Each lesson will have an exit ticket for formative assessment• Each lesson will have an activity for practice and feedback |
| Performance Scores | <ul style="list-style-type: none">• Scores will be available online• Peer feedback will be during discussions.• Instructor will provide scores. |
| Summary and Close | |
| Enhance learning | <ul style="list-style-type: none">• Each lesson will have differentiation activities built in. |
| Remediation | <ul style="list-style-type: none">• Students will have the opportunity to revisit material and resubmit assessments for better grade. |
| Provide opportunities for retention | <ul style="list-style-type: none">• Students will have artifacts from each unit to refer back to. |

Unit 4: Reuse Instructional Strategy Plan

| Orientation to Learning | Instructional Strategies |
|--------------------------|---|
| Overview | <ul style="list-style-type: none"> ● Students will progress through a series of 4 lessons with a culminating activity ● Each lesson will follow the format of: Define, Identify, Activity and Exit Ticket. ● Topics covered in this unit will be: ● What does reuse mean? ● Concrete examples how to reuse plastic ● List resources to find how to reuse or repurpose plastic items. ● Culminating activity to produce an artifact to share. |
| Objectives | <p>Students will identify the plastic items that are reusable and 1 way to reuse plastic.</p> |
| Relevance of Instruction | <ul style="list-style-type: none"> ● Students will be shown different items that have been reused or repurposed that are made of plastic . |
| Assist learner recall | <ul style="list-style-type: none"> ● Students will be asked to observe their home for items that have been or are being used in a different way than what it was intended when purchased. |
| Directions | <ul style="list-style-type: none"> ● Students will start with the Unit 4 Reuse home page. ● They will proceed through the 4 lessons in order 4.1, 4.2, 4.3, 4.4 ● They will engage in all activities and watch any videos. ● They will participate in the exit ticket that will be at the end of each lesson. ● The students will complete one lesson per day. |

| Instruction on the Content | |
|-----------------------------------|--|
| Present Content | <p>Learning Objectives</p> <p>4.1 Students will learn how to reuse plastic items 4.2 Students will research and report on 3 different ways to reuse plastic items 4.3 Students will research and post at least 3 resources on how to reuse plastics. 4.4 Culminating activity. Student will produce an artifact to share.</p> <ul style="list-style-type: none"> • Content will be provided using text, articles, videos, graphics and links to websites. • Peer discussions • Expert conferences |
| Learning Cues | <ul style="list-style-type: none"> • Graphics • Organizers • Bold type • Color • Directions |
| Practice | <ul style="list-style-type: none"> • Sorting activities • Matching activities • Games • Exit tickets |
| Feedback opportunities | <ul style="list-style-type: none"> • Auto graded quizzes • Instructor interaction • Peer discussion |
| Review and Close Unit | <ul style="list-style-type: none"> • Each lesson will have a wrap up and exit ticket • Restate the lesson objectives • Checklists • Rubrics |

| Measurement of Learning | |
|-------------------------------------|---|
| Assess performance | <ul style="list-style-type: none">● Each lesson will have an exit ticket for formative assessment● Each lesson will have an activity for practice and feedback |
| Performance Scores | <ul style="list-style-type: none">● Scores will be available online● Peer feedback will be during discussions.● Instructor will provide scores. |
| Summary and Close | |
| Enhance learning | <ul style="list-style-type: none">● Each lesson will have differentiation activities built in. |
| Remediation | <ul style="list-style-type: none">● Students will have the opportunity to revisit material and resubmit assessments for better grade. |
| Provide opportunities for retention | <ul style="list-style-type: none">● Students will have artifacts to refer back to each unit from. |

Task Analysis Report

Initial Task List

| Access/Navigation |
|---|
| <ul style="list-style-type: none"> • Use the URL of the website, the home page will provide the sequential steps for creating an account on the WBLS platform, including the name, email address, and an avatar. • A user name will be created along the process of opening an account. It is important as an identifier within the WBLS platform. • The details (username, email, or identifier numbers for the school) and the password are required to sign into the WBLS platform. |
| Directions/Introduction |
| <ul style="list-style-type: none"> • Locate the Introduction Module • Use the play and pause features on videos • Adjust volume on videos • Turn on and off closed captioning • Open pdf documents |
| Learning Module Materials |
| <ul style="list-style-type: none"> • A search button at the top left of the website platform allows students and teacher to use keywords to locate targeted resources. • Locate the different modules • Play, pause, or forward the videos • Reduce or increase the volumes • Use Screen reader if necessary • Access other materials (written text pdf documents or comments) |
| Learning Module Assessment |
| <ul style="list-style-type: none"> • Locate the discussion board • Post and reply on discussion board • The tab of post can be clicked to establish the page for typing the comment, uploading a file, or a video onto the platform. • At the end of every comment, there is a reply tan, which allows a signed-in user to post a comment. • Be able to open and use Google Docs or Microsoft Word • Download PDF's • Take end of module quiz |

| Feedback |
|---|
| <ul style="list-style-type: none"> • Read the comments on your posts |

Initial Functional Task List

| Access/Navigation | |
|--|---|
| Task | Function Requirement |
| <ul style="list-style-type: none"> • Logging into the WBLS platform using email • Navigate the platform to locate content and different modules • Interact with the instructor or the teacher through email • Edit the comments | <ul style="list-style-type: none"> • Internet access. • Sign-in information (email and password). • Use a mouse to navigate the system. • Understand the core structure of the WBLS structure. • Create a message on the instructor discussion board. • Read and reply to the messages created by the instructor. • Click on your comment to delete and compose a new one. |
| Directions/Introduction | |
| Task | Function Requirement |
| <ul style="list-style-type: none"> • Locate the Introduction Module • Use the play and pause features on videos • Adjust volume on videos • Turn on and off closed captioning • Open pdf documents | <ul style="list-style-type: none"> • Use the search icon • Locate the pause, play, forward, and rewind icons. • Locate the volume icons. • Locate the captioning software • Locate the pdf, double click and the pdf will open. |
| Learning Module Materials | |
| Task | Function Requirement |
| <ul style="list-style-type: none"> • Locate the targeted materials • Employ the play, pause, forward, or rewind features on videos • Open the pdf documents • Adjust the volume of the videos • Using the captioning function • Using the screen reader software | <ul style="list-style-type: none"> • Use keywords to search for targeted materials • Locate the pause, play, forward, and rewind icons. • Locate the pdf, double click and the pdf will open. • Locate the volume icons. |

| as an aid on the platform | <ul style="list-style-type: none"> Locate the captioning icon Access the screen reader software and activate it to use it on the WBLS platform. |
|---|---|
| Learning Module Assessment | |
| Task | Function Requirement |
| <ul style="list-style-type: none"> Locating and using the discussion board Posting to the platform Responding/replying to the posts and comments Uploading videos, files, and images to the platform Creating private discussion groups for a select group of people | <ul style="list-style-type: none"> Click on the discussion board icon. Click on the post icon. Type the message, attach files or videos, and click post. Click on reply. Type the reply and post. Click on upload, choose the type of media (pdf, video, or images) and click upload. Click on the individual (teacher and student) and click on create group. |
| Feedback | |
| Task | Function Requirement |
| Read the comments and replies. | Read the comments and replies. |

Prioritized Task List

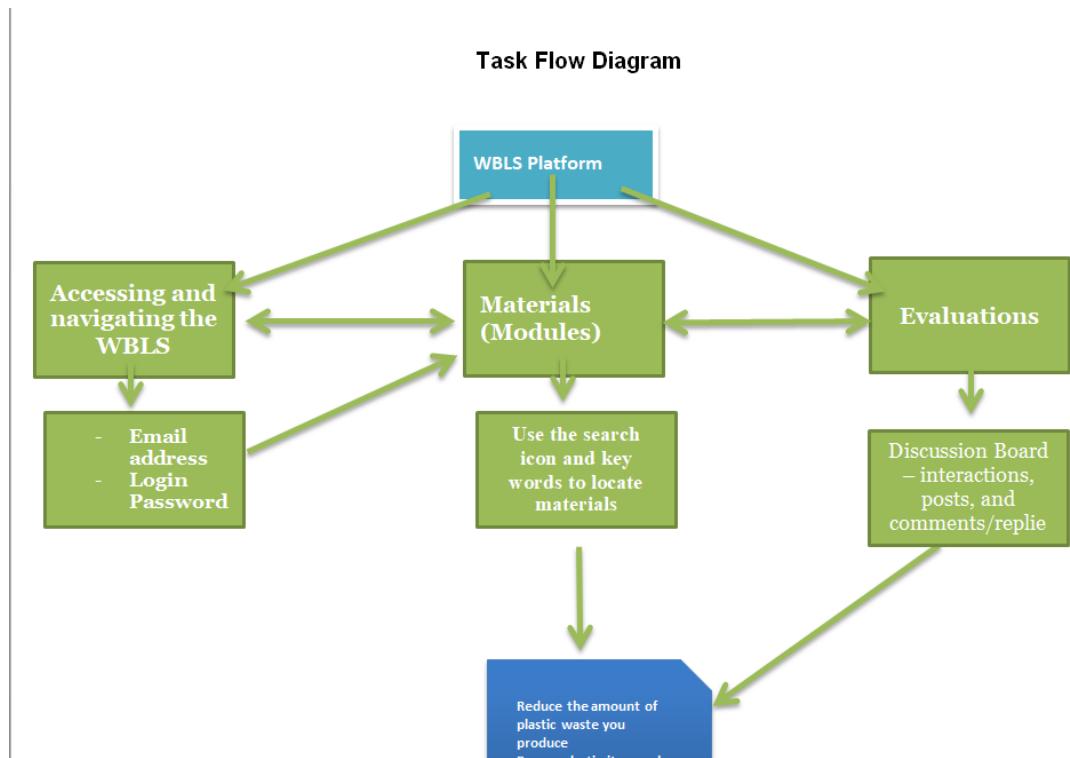
| |
|---|
| <ul style="list-style-type: none"> ✓ = Core Functionality ❖ = Important Functionality ➢ = Nice to have Functionality |
| Access/Navigation |
| <ul style="list-style-type: none"> ✓ Use an email account to log into the WBLS platform ✓ Navigate the platform to locate content and different modules ❖ Interact with the instructor or the teacher through email ➢ Edit the comments |
| Directions/Introduction |
| <ul style="list-style-type: none"> ✓ Locate the Introduction Module ✓ Use the play and pause features on videos ✓ Adjust volume on videos ❖ Turn on and off closed captioning |

| |
|---|
| <ul style="list-style-type: none"> ❖ Open pdf documents |
| Learning Module Materials |
| <ul style="list-style-type: none"> ✓ Locate the targeted materials through the search button ✓ Employ the play, pause, forward, or rewind features on videos ✓ Open the pdf documents ❖ Adjust the volume of the videos ➤ Using the captioning function ➤ Using the screen reader software are an aid on the platform |
| Learning Module Assessment |
| <ul style="list-style-type: none"> ✓ Locating and using the discussion board ✓ Posting to the platform ✓ Responding/replying to the posts and comments ✓ Uploading videos, files, and images to the platform ➤ Creating private discussion groups for a select group of people |
| Feedback |
| <p>Read the comments.</p> |

Prioritized Function List

| |
|---|
| ✓ = Core Functionality ❖ = Important Functionality ➤ = Nice to have Functionality |
| Access/Navigation |
| <ul style="list-style-type: none"> ✓ Internet access. ✓ Sign-in information (email and password). ✓ Use a mouse to navigate the system. ✓ Understand the core structure of the WBLS structure. ✓ Create a message on the instructor discussion board. ✓ Read and reply to the messages created by the instructor. ❖ Click on your comment to delete and compose a new one. |
| Directions/Introduction |
| <ul style="list-style-type: none"> ✓ Use the search icon ✓ Locate the pause, play, forward, and rewind icons. ✓ Locate the volume icons. ➤ Locate the captioning software ❖ Locate the pdf, double click and the pdf will open. |
| Learning Module Materials |

| |
|---|
| <ul style="list-style-type: none"> ✓ Use keywords to search for targeted materials. ✓ Locate the pause, play, forward, and rewind icons. ✓ Locate the pdf, double click and the pdf will open. ❖ Locate the volume icons. ❖ Locate the captioning icon. ➤ Access the screen reader software and activate it to use it on the WBLS platform. |
| <h3 style="margin: 0;">Learning Module Assessment</h3> |
| <ul style="list-style-type: none"> ✓ Click on the discussion board icon. ✓ Click on the post icon. ✓ Type the message, attach files or videos, and click post. ✓ Click on reply. ✓ Type the reply and post. ❖ Click on upload, choose the type of media (pdf, video, or images) and click upload. ➤ Click on the individual (teacher and student) and click on create group. |
| <h3 style="margin: 0;">Feedback</h3> |
| <p>Read the comments and replies.</p> |



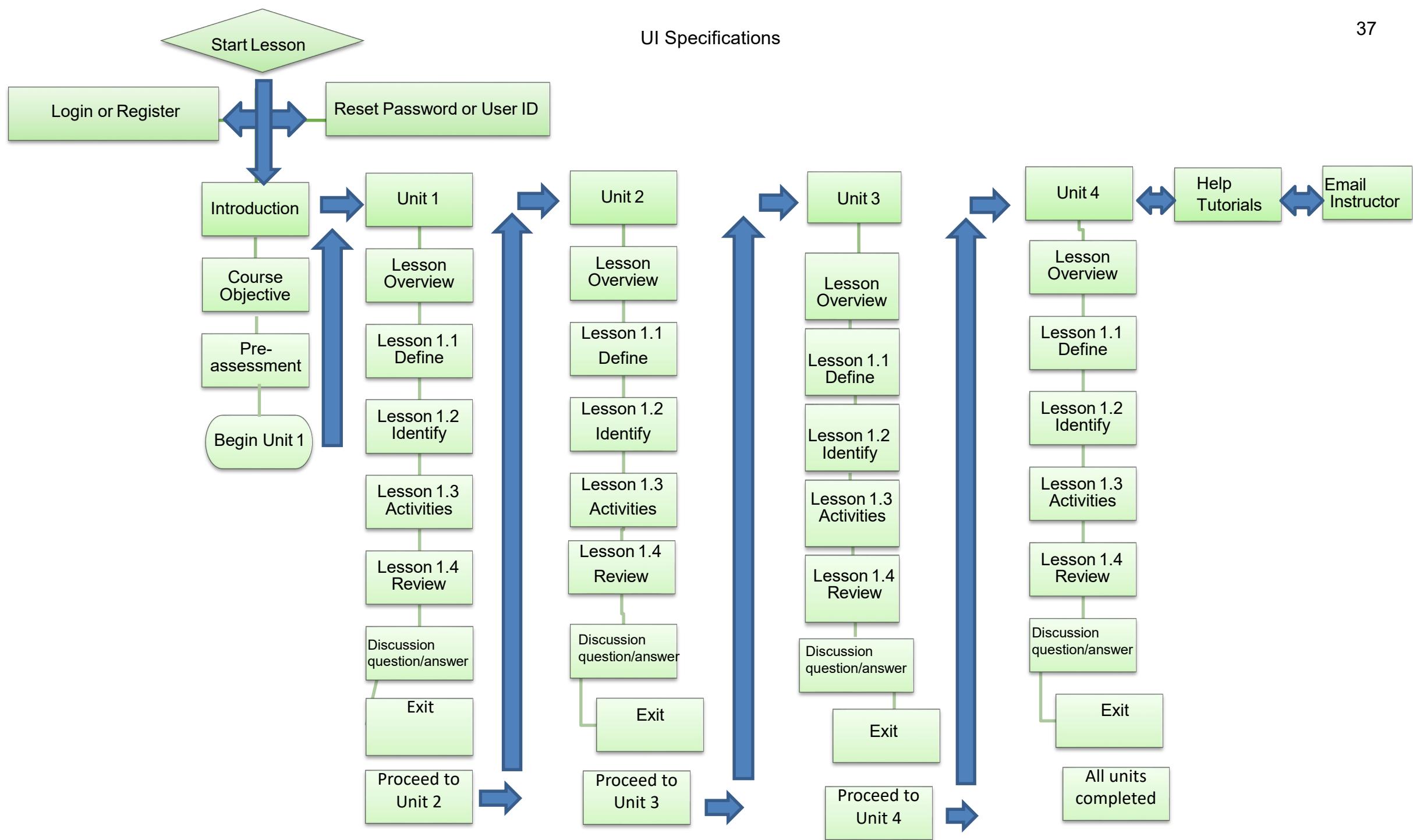
Scenarios for Design

For scenario 1 envision a student who is in a hurry and wanting to be as efficient as possible in an individual learning task.

It's Friday night, Nick is a high school senior, was given an assignment to complete for Monday but his parents said he can't leave to go to the movies until he gets it done. He sits down at the computer at 5:00 pm knowing that the movie starts in 30 minutes and it takes 15 minutes just to get there. He turns the computer on and waits for 30 seconds for it to load. He opens the internet browser and accesses the WBLS site where his assignment is. He types in his username and password and locates the Unit 1 dropdown menu at the top of the home page and selects lesson one. Suddenly, the internet goes down, and he loses his connection. He reloads the page and the internet connection is back. He checks the clock and it is now 5:07 pm. He knows he must hurry so he looks to see if he can access the assessment portion for lesson one so he can skip over everything else, but he reconsiders doing that because he wants to at least try to get a good grade. He starts the first learning activity at 5:09, but just as he starts, he gets a text message from his friend Devon asking if he has left yet. Nick stops to respond and then starts the first learning activity at 5:10 pm. This leaves 5 minutes to complete all the learning activities and the assessment. He skims through reading the information in the learning activities and watches the first few minutes of a video and then tries to fast forward through the video to find pertinent information after realizing the video is four minutes long. He finally reaches the assessment at 5:15 pm knowing that he should be leaving right now, but he must complete the assessment, or he can't go to the movies. He doesn't guess at the multiple-choice questions, but he also doesn't read them very thoroughly. Nick completes the 20-question multiple question quiz at 5:20 pm with a score an 82%. He leaves and arrives at the theater at 5:35 pm and is now known as "that guy" who shows up to the theater after the movie has started.

For scenario 2 envision a student who wants to have an efficient and effective collaborative work with his/her teammates in the WBLS and achieving at a high level of performance.

Grace and Sophia are both high school seniors who are straight A students. They sit down at the computer to complete an assignment. Grace operates the computer while Sophia takes notes using a pencil ad paper. Grace opens the internet browser to access the WBLS where the assignment is located and types in the username and password. They both read the welcome page which includes the instructions and the objectives. Sophia writes down the objectives as a reminder of key points you both should be looking for as you both work through the lesson. Then Grace proceeds to the first learning activity by hovering the mouse over the Unit One dropdown menu at the top of the home page and selecting the first lesson. The first activity has a video that is failing to load, so Sophia goes to ask the teacher for assistance. The teacher looks and determines it must be an issue with video's host site and instructs you to skip that part. Grace continues reading through the learning activity while Sophia takes notes. They both take the time to read through each activity thoroughly and participate when necessary. They reach the end and it is time to take the assessment. Sophia must stop for a restroom break. She returns and you both continue with the assessment. They receive a 98% on the assessment because there was one question that they didn't know the answer to. Sophia writes down the question so she can ask the teacher if that question was related to the information that they would have found in the video. The teacher confirms and adjusts the grade. Grace and Sophia high-five for a job well done.



A. Site Map: You will create a site map that shows the organization of your WBLs and how users browse the WBLs. You may use the Flow Diagram on page 259 of the textbook A as an example. [Mod: 1 pt]

B. Activity Guide/Directions

The WBLS will have the same theme for each page. It will utilize a simple color scheme from the Google Sites template in shades of green, blues, purples and greys throughout. Each page will have the same font styles and accessibility options. There will be a vertical navigation bar across the top with drop down menus that will remain on each page to allow for consistency throughout the WBLS. The WBLS is divided into 4 different units with corresponding lessons underneath. The navigation bar is arranged so there is a unit heading with a drop down for each corresponding lesson below. Learning objectives will be displayed at the beginning of each unit, in addition to a lesson overview at the start of each lesson. The page itself will be divided into thirds. The top third will contain fill color of green, gray, blues and purples. The second and third halves will be white - to the viewer's eye, from a design standpoint the divisions allows us to be more creative in using embedded type multimedia content and using more chunks of the page to present current materials related to plastics and recycling.

The first layer of navigation will be the login screen. Learner will be required to login with their User ID & password. If they can't remember or have lost their User ID or Password they will be directed to a recovery page where they can choose to reset their password or discover what their User ID is. Learners will arrive on the Home Page. This page will contain a navigation bar in the upper right corner with drop down menu lists for each lesson per Unit. The home page will contain learning objectives for the course, information and a "test your

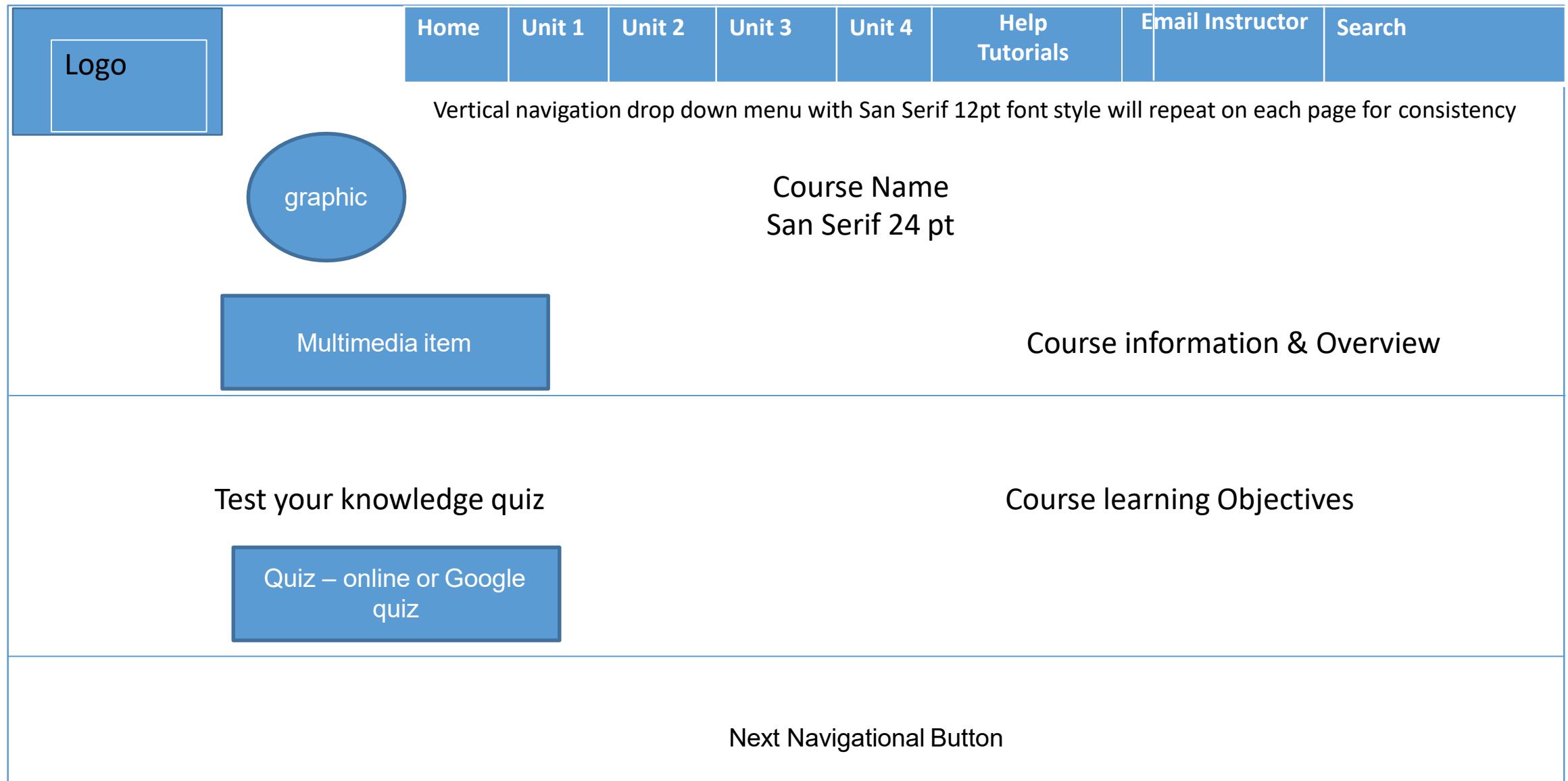
knowledge” quiz to evaluate learners understanding of the subject. Upon completion learners will start Unit 1.

The second layer of navigation is the Learning Units. Each unit will have an Overview page that indicates the unit name, the lesson overview, objective and any special instructions for completing the lesson. Learners will progress to the content page. The content page contains the lesson number, content information, any activities relating to the lesson, and embedded items, videos, info graphics or text. Discussion questions and the lesson quiz will be included. Instructions will also be provided to learners so they know how to navigate video presentations, locate the pause, play, forward and rewind icons, adjust the audio controls of an audio or video file, and download pdf's or other documents for use.

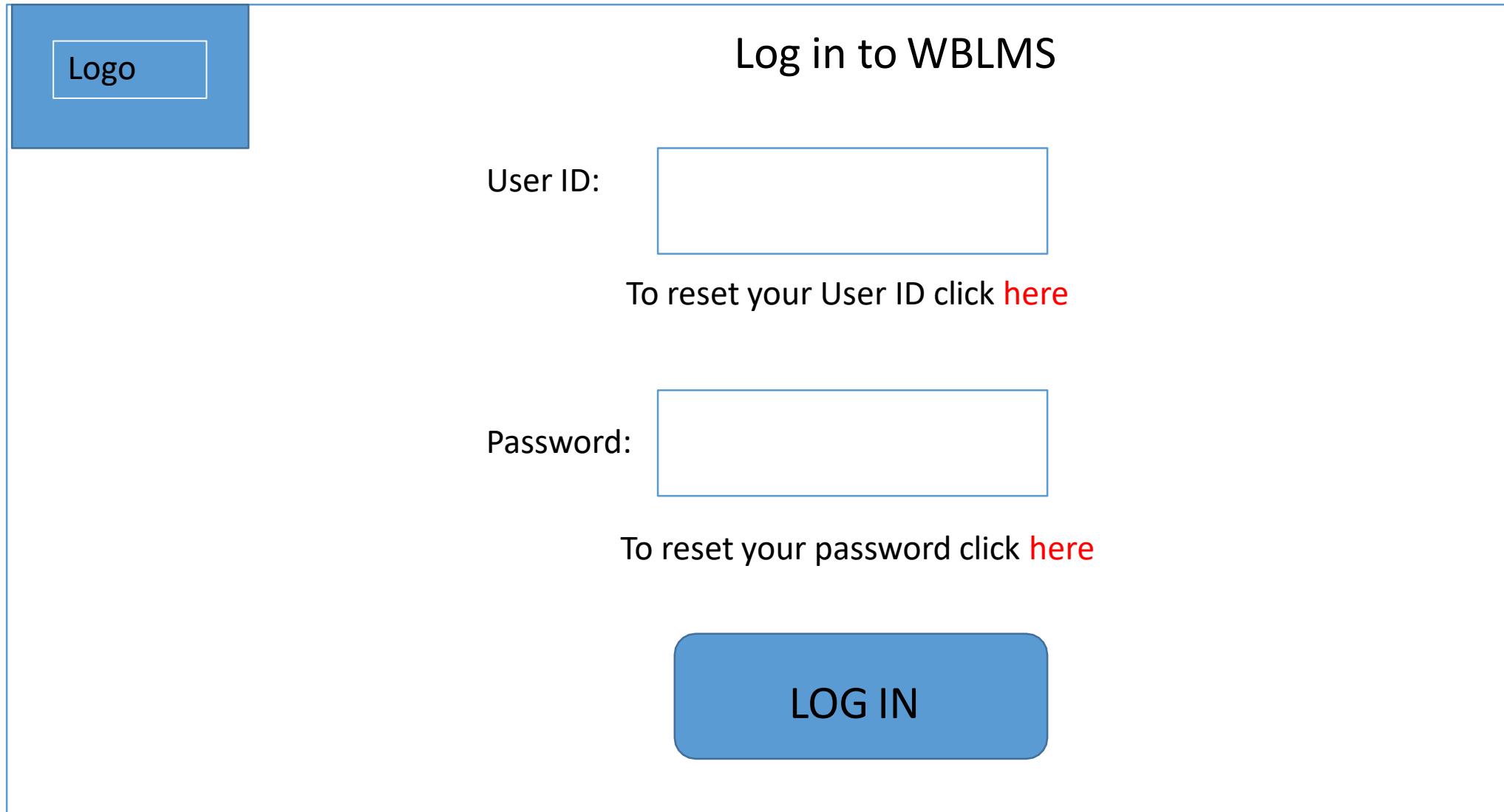
The third layer is the discussion board. Each lesson will provide learners the opportunity to enter into a dialogue with their peers regarding the content information. Learners will be able to post and respond to discussion posts about topic questions presented in each lesson. Questions and answers for each unit discussion will be found within the unit section. Students will be able to post their reply to the unit discussion question from within the section for discussion purposes.

In addition there will be a help page with tutorials for learners that have questions regarding how to move around the site. If a student needs to email the instructor with questions or comments regarding the course, there is a separate link for that along the top navigation bar, along with a Search bar - allowing learners to search the site for key terms and ideas.

C. Main page Interface: Detailed Storyboard Course home page



D. Sub page Interface: Log in Screen (Will come before main home page)



The diagram illustrates a login screen interface. It features a blue header bar on the left containing a 'Logo' placeholder. The main area has a light gray background. At the top center, the text 'Log in to WBLMS' is displayed. Below it, the label 'User ID:' is followed by a large input field. Underneath this field, a link reads 'To reset your User ID click [here](#)'. The next section is labeled 'Password:' followed by another large input field. Below this field, a link reads 'To reset your password click [here](#)'. A prominent blue rounded rectangular button at the bottom center contains the text 'LOG IN'.

Logo

Log in to WBLMS

User ID:

To reset your User ID click [here](#)

Password:

To reset your password click [here](#)

LOG IN

D. Sub page Interface: Password & Username Retrieval (Will come before main home page)

The wireframe illustrates a user interface for password and username retrieval. It features a blue header bar with a 'Logo' placeholder. Below the header, there are two main sections: 'Forgot my User ID:' and 'Forgot password:'. Each section contains a label and a blue input field. A large blue rectangular area on the left is labeled 'Fun Graphic here or something to balance white space'.

Logo

Resetting your password or finding username
San Serif 24

Forgot my User ID:

Enter your email address to retrieve your User ID:

Email Address:

Forgot password:

Enter your User ID and a temporary password will be sent to your registered email address

Username:

Fun Graphic here or something to balance white space

D. Sub Pages Interface: Unit 1, 2, 3, 4 Overview Screen

D. Sub Pages Interface: Unit 1, 2, 3, 4 LESSON (Ex. Lesson 1.1, Lesson 1.2 ,Lesson 1.3 Etc.) Content Screen

| | | | | | | | | |
|--|------|--------|--------|--------|--------|-------------------|---------------------|--------|
| Logo | Home | Unit 1 | Unit 2 | Unit 3 | Unit 4 | Help Tutorials | Email Instructor | Search |
| <p>(Each lesson will have pages like this for each section of the drop down menu)</p> <p>Lesson 1.1 Lesson 1.2 etc. Lesson 2.1. Lesson 2.2 etc. Lesson 3.1 Lesson 3.2 etc. Lesson 4.1 Lesson 4.2 etc.</p> <p>Lesson Number and various multimedia content to review</p> <hr/> <p style="text-align: center;">Content Information</p> <hr/> <p style="text-align: center;">Define Identify Content Activity Discussion Q & A Lesson Quiz</p> <hr/> <p style="text-align: center;">Exit Instructions and Navigation Button San Serif 11 pt</p> | | | | | | | | |

D. Sub Pages Interface: Unit 1, 2, 3, 4 Discussion Board

| | | | | | | | | |
|------|------|--------|--------|--------|--------|----------------|------------------|--------|
| Logo | Home | Unit 1 | Unit 2 | Unit 3 | Unit 4 | Help Tutorials | Email Instructor | Search |
|------|------|--------|--------|--------|--------|----------------|------------------|--------|

Discussion Board San Serif 18

Instructions for Using the Discussion Board

Each unit will have it's own Discussion with specific questions and an area for the students to post their answers to.

Unit 1 – Discussions Q & A

Unit 2 – Discussions Q & A

Unit 3 - Discussions Q & A

Unit 4 – Discussions Q & A

San Serif 11 pt

D. Sub Pages Interface: Help tutorials

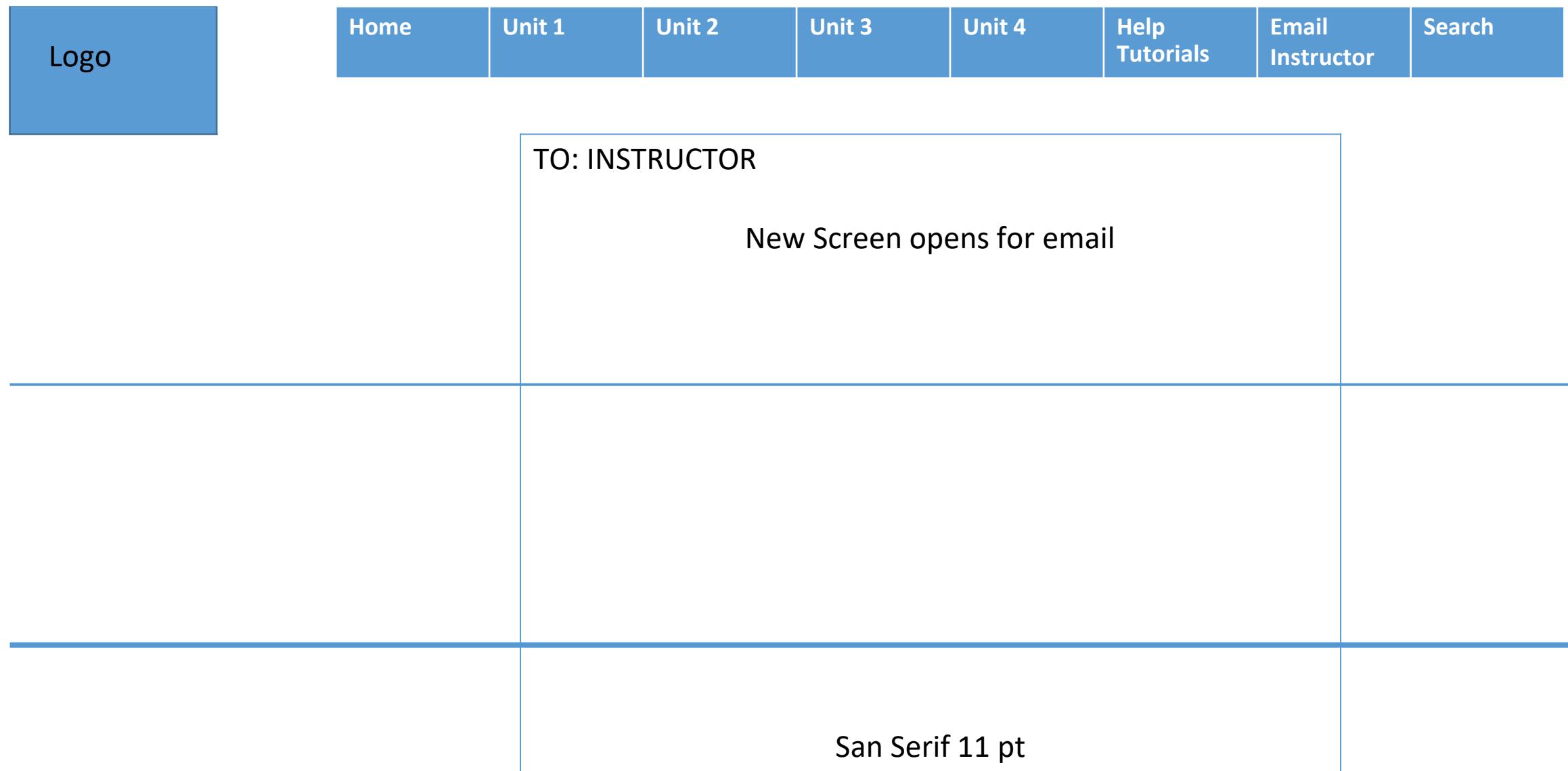
| | | | | | | | | |
|------|------|--------|--------|--------|--------|----------------|------------------|--------|
| Logo | Home | Unit 1 | Unit 2 | Unit 3 | Unit 4 | Help Tutorials | Email Instructor | Search |
|------|------|--------|--------|--------|--------|----------------|------------------|--------|

HELP
(San Serif 18)
How to get around the course

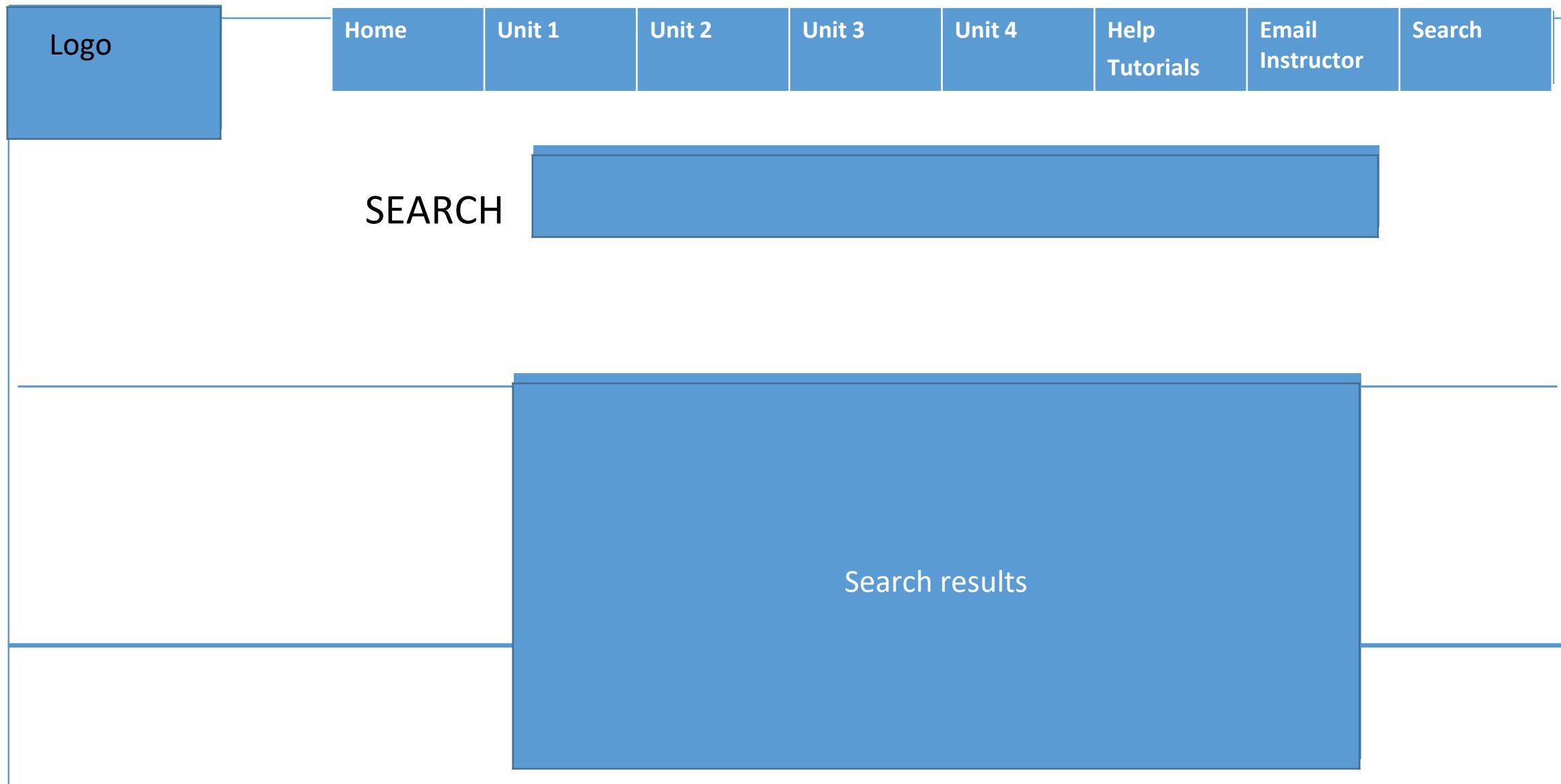
Content here regarding how the course works, tutorial for accessing the online content, working with video, adjusting settings, uploading information, locate the pause, play, forward and rewind icons, adjust the audio controls of an audio or video file, and download pdf's or other documents for use.

San Serif 11 pt

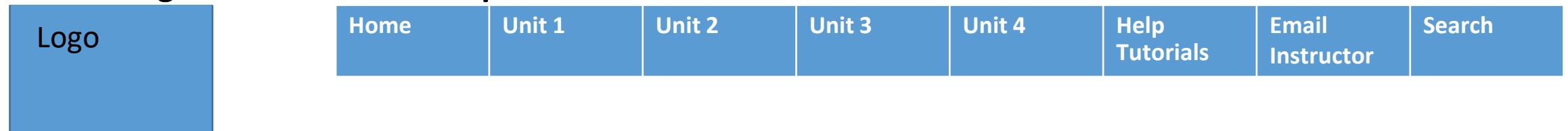
D. Sub Pages Interface: Email Instructor



D. Sub Pages Interface: Help Screen



D. Sub Pages Interface: Site Map



Site Map Structure

The screenshot shows a main page prototype for an environmental website. At the top, there's a navigation bar with links: 'Save the Planet' (highlighted in blue), 'Home', 'Unit 1: Refuse ▾', 'Unit 2: Reduce ▾', 'Unit 3: Reuse ▾', 'Unit 4: Recycle ▾', 'Help Tutorials', and 'More ▾'. On the left side, there's a logo with a green circular border containing the letters 'R', 'e', 'f', 'u', 's', 'e', 'r', 'e', 'd', 'u', 'c', 'e', 'r', 'e', 'c', 'y', 'c', 'l', 'e', 'c', 'y'. Below the logo, there's a small image of a rabbit in grass. A button labeled 'Add logo' is visible above the logo. To the right of the logo, a dark gray sidebar contains four menu items: 'Lesson 1.1', 'Lesson 1.2', 'Lesson 1.3', and 'Lesson 1.4'. The main content area features a large blue background image of water with the title 'Problem with Plastics' in white. Below the title, there's a section titled 'Information & Course Overview'.



Information & Course Overview

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Nibh sed pulvinar proin gravida hendrerit lectus. Sollicitudin nibh sit amet commodo nulla facilisi nullam. Senectus et netus et malesuada fames ac turpis. Id velit ut tortor pretium viverra suspendisse potenti nullam. Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Nibh sed pulvinar proin gravida hendrerit lectus. Sollicitudin nibh sit amet commodo nulla facilisi nullam. Senectus et netus et malesuada fames ac turpis. Id velit ut tortor pretium viverra suspendisse potenti nullam.

**Unit Objective:**

Students will learn 4 ways to refuse plastic products in their lives.

Refuse Plastics

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Expert and User Reviews Report

1. Revised Evaluation Plan for Formative Evaluation

The revised formative evaluation plan was to measure the usability of our WBLS prototype. The team wanted to get feedback from expert users to identify the strengths and weaknesses of our design during the preliminary stages of building our course. The feedback that was collected will be used to make changes to our WBLS to help make the user experience more meaningful and useful. The course has been designed to supplement Environment Science at the high school level. The course content is concentrated on the impact of plastic on the environment. The course is set up in 4 units with 4 lessons each to help students learn more about how the environment is impacted by plastic and solutions to reverse the damage on the Earth.

Web Design Experts: There were two web-design experts who were recruited to assess our design. Both work for University Communication and Marketing at the University of Akron. They are the Director and Assistant Director for Web Services for the University of Akron. They work in shared leadership for the design, maintenance, and upkeep of the University's web properties. These include: The University's forward facing website, a comprehensive installation of Wordpress for personal and student websites, the University's mobile web presence, and they act as advisors for the team maintaining the University LMS, Brightspace. Their duties include: design, development and coding for all properties, as well as, responsibilities pertaining to government mandated accessibility compliance.

Both experts were sent, in an email, a website usability survey to guide them through an exploration of the web based learning system. Each completed the survey independently and returned it via email. The experts took about 1 hour each to follow the tasks on the survey and comment on their findings. The expert's comments were very clear and precise. Face to face discussion occurred between one team member and the Director of Web Services to brainstorm some ideas to improve the web based learning system.

Content Experts: Our first content expert is the Operations Coordinator for the Stark-Tuscarawas Solid Waste District which manages the collection of garbage and recyclables for Stark, Tuscarawas, and Wayne counties. He was also a member of the committee that organized the first Master Recycler Certification class for the district, as well as a Master Recycler himself. This expert said that our content was very informative but very general. He suggested that we make some of the links more obvious and more specific and up to date. He also offered to help with gathering information. Our second content expert is a Project Manager Assistant, Student and a Master Recycler. While she does not have a profession in the field of environmental science, she is passionate about learning about and advocating for ways to help the environment. She received her Master Recycler certification in the Fall 2018. She suggested that some of the content be arranged in a way that puts the pertinent information towards the top where it will be seen and read first. She also noticed that some of the activities don't exactly go along with the content of the lesson, and are more broad or generalized. However, she does think it has good potential for being a very useful and relevant resource.

Student Users: The two students chosen to participate in the user review are recent graduates from high school (within the past year) and they still fall into the target audience for this course. Student A is a male student who graduated from a city high school and was involved with theatre, sports and graduated with honors. Student B is a female student who graduated from a small local high school and was involved in many activities from track to cheer and also graduated with honors. They both are very proficient with the computer and have had

experience with online components of course work in their high school classes. Both students were observed individually while they accessed and navigated the site. The students took notes as they navigated the site in response to the questions we presented them and additional comments they had along the way. The students had some difficulty with knowing what to do on the lesson pages. One did not know how to use Padlet and another said that they would not pay attention to the video unless there was some sort of assessment to go along with it. They both were able to navigate the site and perform the tasks correctly. They did like the use of the color scheme and the repetition of the navigation bar throughout the site. However, they were confused as to what the purpose was for each lesson.

2. Relevant Documents/ Guides

a. Web Design Expert Document

Web Design Review Scenario and Tasks

You have been asked to review this website for a usability study. The website is designed for a high school Environmental Science Class for seniors. The average age of the students will be between 17 and 19. The students will log into their Google account and access the website from there Google Classroom. There are 4 units in this web based learning system with 4 lessons in each unit. The students meet every day for 45 minutes. The students will be expected to complete 1 lesson per day. Some of the activities will be completed outside of class. The students are required to do each lesson, in order, throughout this learning experience starting with Unit 1. Each student has a Chromebook and is responsible to bring it to class every day. They will be in a physical classroom with the teacher available for questions and clarification of content. They are expected to read all text, extra resources, watch all videos and engage in all activities. They must get at least an 80% on each posttest at the end of each lesson.

Your tasks are as follows:

1. Access the website: <https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home>
2. Look over the home page.
3. Click any links
4. Use the navigation.
5. Proceed to Unit 1
6. Look at the Unit 1 home page
7. Access the lessons in Unit 1
8. Look around.
9. View any media.
10. Follow a link to an extra resource
11. Check out the Discussion page
12. Go back to the home page.

Please answer the questions that are attached to this document as you are reviewing this

website. Please be specific with your answers and write any needed improvements that you deem necessary to improve the student experience. We value your expert opinion.

Thank you.

**Web-Design Expert
Review**

Name: _____ Date: _____

Occupation: _____

Home Page

What do you think the site is about? _____

How do you know? _____

What do you see first? _____

What do you click on first? _____

Was the page layout pleasing to look at? _____

In your expert opinion, what changes to the home page are necessary?

Navigation

Was it obvious? _____

Did you get the results you expected? _____

Was there anything you could not access? _____

Explain ease of use to accomplish task. _____

Is it efficient? _____

In your expert opinion, are there any changes needed with the navigation? Please explain

Unit and Lesson Pages

What pages did you navigate to? _____

Did you know what to expect on the pages? _____

Were the links obvious and informative? _____

Did you engage in the media? Did it work? _____

Was the page engaging and easy to read? _____

Do you have any other suggestions for this site?

b. Content Expert Document:**Content Expert Content Expert Review Scenario.**

You have been asked to review this website for a usability study. The website is designed for a high school Environmental Science Class for seniors. The average age of the students will be between 17 and 19. The students will log into their Google account and access the website from there Google Classroom. There are 4 units in this web based learning system with 4 lessons in each unit. The students meet every day for 45 minutes. The students will be expected to complete 1 lesson per day. Some of the activities will be completed outside of class. The students are required to do each lesson, in order, throughout this learning experience starting with Unit 1. Each student has a Chromebook and is responsible to bring it to class every day. They will be in a physical classroom with the teacher available for questions and clarification of content. They are expected to read all text, extra resources, watch all videos and engage in all activities. They must get at least an 80% on each posttest at the end of each lesson.

Your Tasks are as follows:

1. Access the web site: <https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home>
2. Look over the Home Page
3. Engage with the content
4. Click around and explore

5. Access Unit 1
6. Engage in the content
7. Access Lesson 1.1
8. Engage in the content
9. View any media
10. Follow a link to an article
11. Return to the Home Page

Please answer the questions that are attached to this document as you are reviewing this website. Please be specific with your answers and write any needed improvements that you deem necessary to improve the student experience. Thank you.

Content Expert Review

Name: _____ Date: _____

Occupation: _____

Home Page

What do you think the site is about? _____

How do you know? _____

What do you see first? _____

What do you click on first? _____

How did you engage in the content?

- Skim (read headlines and looked at graphics)
- Read (read some content and looked at graphics)
- Study (read everything, in depth, including graphics)

In your expert opinion, what changes to the content of the home page are necessary?

Navigation

Was it obvious? _____

Did you get the results you expected? _____

Was there anything you could not access? _____

Explain ease of use to accomplish task. _____

Is it efficient? _____ In
your expert opinion, are there changes necessary for this navigation, if so what?

Unit and Lesson Pages

What page did you navigate to? _____

Did you know what to expect on this page? _____

How did you engage in the content?

- Skim (read headlines and looked at graphics)
- Read (read some content and looked at graphics)
- Study (read everything, in depth, including graphics)

Was the content accurate? _____

Was the content concise and informative? _____

Did you engage in the media? Did it work?

Did the activity enhance the understanding of the content for the student?

In your expert opinion, are there changes needed for the content?

c. Student Users Document

Student Usability Review

You have been asked to review a web based learning system for Environment Science. You will be asked to complete certain tasks. This is the first day of the course. You will have your own device to access the web-site. The class meets for 45 minutes every day. You will be in a classroom with other students and the instructor. Please complete the tasks listed. The instructor will be watching and taking notes as you move through the web-based learning system. Thank you for doing this. You are free to do what you like. It is best for our review if you try to act as naturally as you might if you logged into one of your own classes. You are required to read the content, follow any links and read any articles, watch all videos, take the pre and posttest, engage in the discussion questions.

Your Tasks are as follows:

1. Access the web based learning system: <https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home>
2. Look at the Home Page.
3. Read the information and follow the directions
4. Proceed to the first unit.
5. Read the information and follow the directions.
6. Proceed to the first lesson.
7. Take the pretest
8. Read the information
9. Engage in the activity.
10. Take the Posttest
11. Participate in the discussion

Thank you for doing this review. Please tell your instructor of you have any problems or concerns while using this site. You did a great job.

Student Check List

- Correctly accessed site.
- Read information on home page. About how long before they moved on? _____
- Correctly accessed first unit
- Read information and engaged in the content. About how long did this take? _____
- Watched video
- Accessed first lesson

Read information About how long did this take?

Took pre-test Score?

Engaged in the activity About how long did this take?

Took the posttest Score?

Found the discussion question.

Participated in the discussion

Total Time to finish lesson

Notes and Observations

3. Results for Expert and User Review

a. **Web Design Expert**

Completed Documents:

Web-Design Expert Review

Name: Eric Kreider Date: 06/25/2019

Occupation: Director, Web Services, The University of Akron

[Home Page](#)

What do you think the site is about? Dangers of plastics use and recycling of plastics

How do you know? Reading the Information & Course Overview on the homepage

What do you see first? The Bottled Water graphic on the left

What do you click on first? The link to What's made of Plastic under Course Objectives

Was the page layout pleasing to look at? Yes

In your expert opinion, what changes to the home page are necessary?

There are multiple methods of navigation to the same thing I found at least three links to Unit 1 homepage. The Homepage itself has multiple links to itself. This one obvious link, the site logo, is NOT linked to the homepage. There is an odd link indicator on the Course Objectives heading. The copyright statement could use some more information and contain information regarding who to contact about the site if people have questions.

Navigation

Was it obvious? Pretty straight forward and obvious. Again the home buttons are redundant

Did you get the results you expected? Wasn't totally clear that the links at the bottom of each lesson page were intended as 'Next' buttons although once used the pattern is consistent and the user will catch on quickly.

Was there anything you could not access? Everything I clicked, worked.

Explain ease of use to accomplish task. No problems

Is it efficient? Seems to be although by the time I get through a section, I have a lot of open tabs.

In your expert opinion, are there any changes needed with the navigation? Please explain.

As I stated before, there are some redundancies in the navigation which, for an instructional application may be OK. For forward facing sites, this would be considered a problem for SEO consideration and against standard.

Unit and Lesson Pages

What pages did you navigate to? All of Section / Unit / Lesson 1

Did you know what to expect on the pages? I was expecting a guided educational experience

Were the links obvious and informative? Yes and no. It would be good to find a way to indicate those resources that are taking me off-site to other resources. Also, it was not obvious to me what was necessary to complete for the goal of the learner completing the course.

Did you engage in the media? Did it work? Yes. Yes.

Was the page engaging and easy to read?

_Yes_____

Do you have any other suggestions for this site?

On the page with the media, <https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/unit-1-refuse/lesson-1-4> there is an odd progress bar beneath the videos. My tendency was to try to interact with them. The don't appear to do anything.

The discussion area seems to work but the unit areas seem to not be unique. When I go to the Discussion for Unit 2, I see entries I made in Unit 1.

The Site Map is blank.

The Help page is blank

Web-Design Expert Review

Name: Anthony W. Serpette Date: 06/25/2019

Occupation: Asst. Director, Web Services – The University of Akron

Home Page

What do you think the site is about? Plastics

How do you know? The heading/title of site clearly indicated this

What do you see first? The title, then the green logo

What do you click on first? I tried clicking the infographics, my first successful click was the button under Course Objectives

Was the page layout pleasing to look at? Yes, the page was balanced and provided clear information about the site and purpose

In your expert opinion, what changes to the home page are necessary?

Graphics with text are generally not accessible without the addition of Alt-Text. Suggest adding the Alt-Text or

reworking the graphics to separate out the text

Consider also moving the “action items” (the links to get people started) higher up on the screen.

Navigation

Was it obvious? Yes, clearly visible across the top of the page

Did you get the results you expected? Yes, the links took me to the expected pages.

Was there anything you could not access? No, all the pages worked.

Explain ease of use to accomplish task. The drop down links gave a full list and made it easy to select a subsection.

Is it efficient? Yes, I had no problems jumping to specific pages

In your expert opinion, are there any changes needed with the navigation? Please explain.

Suggest using short titles along with the Lesson number 1.1 - I wasn't otherwise sure of what I would be seeing on the page until I clicked it. This will help with the return visits to specific resources.

Unit and Lesson Pages

What pages did you navigate to? I spent most of the time in the Unit 1 section

Did you know what to expect on the pages? No, the Lesson had a number, but not a title

Were the links obvious and informative? Once I got to the page, I understood the content, but otherwise I would just follow the numbers.

Did you engage in the media? Did it work? Yes and Yes. There was an odd redirect, but this may have been a function of the platform.

Was the page engaging and easy to read? Yes, the pages were well organized and easy to follow.

Do you have any other suggestions for this site?

Consider using a specific color and theme through the site – rather than changing on a per-section basis. The colors were well selected and did not detract from the readability, but were a little jarring.

Adding a visual indicator (like an arrow) to the bottom of the pages to indicate the user should go to the next sections would help with the progression through the site.

Overall, this site was well organized and engaging. The concerns I noted were minimal and the site – with the additional content – would be considered ready for production.

SUMMARY of RESULTS: The Director of Web Services review had several suggestions to improve the user experience. The home page was described as being well balanced and pleasing to look at. The content of the website was obvious. Some suggestions to improve the page are to limit the number of ways to access the home page from the home page, instead, make the logo a clickable link to the home page throughout the whole site. The copyright information should have contact information, date that the site was updated and the logo.

The Navigation was easy to find and pretty straight forward according to our expert. The reviewer mentioned again that there are multiple ways to access the home page but the logo is not linked to home page, which is an industry standard. All links worked.

The Unit and Lesson pages were described to be well organized, although, it was not obvious what tasks were needed to complete the lesson objectives. The reviewer thought that some indication of what resources would take the learner off site would be helpful. The media worked, but the discussion post for lesson 1 showed up in all discussion posts for different lessons. The site map is blank and the help section did not have any content in it.

The Assistant Director of Web Services review gave great suggestions to help make the web based learning system (WBLS) more user friendly. The review started with the looking at the home page of the WBLS. The reviewer first saw the logo and the headline of the page. He commented that he knew exactly what the website was about. He believed that the design and layout of the page was well organized and provided clear information about the site. He suggested to put the clickable items closer to the top, add “alt-tags”, and separating the text from the actual graphic or picture.

Navigation was found to be very easy to understand. The links all worked and the menu structure was easy to understand. The reviewer suggested that the drop down menus have more information about the content of the page. He thought that this would give the user more information on what is on that page and whether it was necessary to access.

Unit and Lesson Pages were reviewed next by The Assistant Director of Web Services. The reviewer spent all his time in Unit 1. There was confusion about what was contained on each page because there are no descriptive words in the menu structure. They are numbered but not named. The pages are well organized and easy to follow. A suggestion to help the user figure out where to go next was to put an arrow near the button at the bottom of the page to show where to go next. The following table lists the comments and modifications suggested from the web-design review experts.

| Director of Web Services | |
|---------------------------------|-----------------|
| Task | Comments |

| Home Page | Easy to read. Pleasing to look at Home buttons are redundant(platform problem) More information needed in the footer. Make logo clickable to home page throughout. |
|---|--|
| Navigation | Straight forward Easy to find Next button should be more specific Make logo clickable to home page All links worked |
| Unit and Lesson Pages | Pages were well organized. How to meet lesson objectives were not obvious. Indicate when resource will take student offsite. Fix the discussion posts to be separate. Populate Site Map Populate Help Page with useful information. |
| Assistant Director of Web Services | |
| Task | Comments |
| Home Page | Well organized Easy to read. Knew what to expect in the content Add “alt-tags” Separate text from clickable images |
| Navigation | Understandable Easy to find All links worked Add descriptive title to drop down menus |
| Unit and Lesson Pages | Confusion about what was contained in each lesson. Pages well organized Easy to read All media worked. Add arrow or graphic toward bottom of page to help student navigate to the next page. Add action items or activities toward top of page. |

**b. Content Expert:
Completed Documents:**

Content Expert Review

Name: Nikki Smalley Date: 6/28/2019

Occupation: Project Manager Assistant/Student/Master Recycler

Home Page

What do you think the site is about? The Problem with Plastics

How do you know? It is the title on the home page.

What do you see first? The 4 R logo with the bunny.

What do you click on first? The link for Do You Know What Things Are Made From Plastic

How did you engage in the content?

Skim (read headlines and looked at graphics)

Read (read some content and looked at graphics)

Study (read everything, in depth, including graphics)

In your expert opinion, what changes to the content of the home page are necessary?

Moving the course objectives and links to the top of the page and the graphics to the bottom or to one side.

Navigation

Was it obvious? The top menu.

Did you get the results you expected? The links took me where they said they would go.

Was there anything you could not access? No.

Explain ease of use to accomplish task. Everything was either embedded or a link, so easy.

Is it efficient? It would be better if more things were embedded but not everything has that capability. Overall, it works and flows ok.

In your expert opinion, are there changes necessary for this navigation, if so what?

I don't think it is obvious that there are actual pages for Unit 1-4 links in the navigation menu at the top of the page. I'm not sure they are entirely necessary.

Unit and Lesson Pages

What page did you navigate to? Unit 1

Did you know what to expect on this page? I expected Unit 1 but not sure what else would be there.

How did you engage in the content?

- Skim (read headlines and looked at graphics)
- Read (read some content and looked at graphics)
- Study (read everything, in depth, including graphics)

Was the content accurate? It was mostly graphics, but nothing seemed unbelievable.

Was the content concise and informative? It was informative, but all over the place.

Did you engage in the media? Did it work?

Yes, it worked.

Did the activity enhance the understanding of the content for the student?

Not really, Lesson 1.1 was about refusing, and the quiz was about plastic knowledge.

In your expert opinion, are there changes needed for the content?

Yes.

**Content Expert
Review**

Name: Steven Tharp Date: 6-26-19

Occupation: Operations Coordinator/Master Recycler

Home Page

What do you think the site is about? Plastic Polution

How do you know? Content of home page/sub pages

What do you see first? Reduce reuse Recycle

What do you click on first? Save the Planet

How did you engage in the content?

- ✓ Skim (read headlines and looked at graphics)
- ✓ Read (read some content and looked at graphics)
- ✓ Study (read everything, in depth, including graphics)

In your expert opinion, what changes to the content of the home page are necessary?

The focus should be in the title. The problem with plastic is such a negative

title. I would suggest : Plastic- How You Can Change the Worlds

Dependency On It I also didn't know that the site was for a course. It just seemed

abrupt. Love the content though.

Navigation

Was it obvious? The icons to click on could be more obvious

Did you get the results you expected? yes

Was there an

Explain ease of use to accomplish task. It follows the page and is how i process information

Is it efficient? I would need to think more about this.

In your expert opinion, are there changes necessary for this navigation, if so what?

I think the information could organized in a more obvious

Unit and Lesson Pages

What page did you navigate to? lesson 1

Did you know what to expect on this page? yes.

How did you engage in the content?

- ✓ Skim (read headlines and looked at graphics)
- ✓ Read (read some content and looked at graphics)
- ✓ Study (read everything, in depth, including graphics)

The content is pretty general and think some of the material could use some more accurate information

Was the content accurate? _____

Was the content concise and informative? It was for a general audience

Did you engage in the media? Did it work?

Did the activity enhance the understanding of the content for the student?

I think so

In your expert opinion, are there changes needed for the content?

Yes. I think generalizations are our enemy. Clear and concise facts need to be presented.

The District can assist in helping to craft the message if the help is needed or wanted

SUMMARY OF RESULTS: Content Experts:

Our first content expert is the Operations Coordinator for the Stark-Tusc-Wayne Solid Waste District which manages the collection of garbage and recyclables for Stark, Tuscarawas, and Wayne counties. He was also a member of the committee that organized the first Master Recycler Certification class for the district, as well as a Master Recycler himself. This expert said that our content was very informative but very general. He suggested that we make some of the links more obvious and more specific and up to date. He also offered to help with gathering information.

Our second content expert is a Project Manager Assistant, Student and a Master Recycler. While she does not have a profession in the field of environmental science, she is passionate about learning about and advocating for ways to help the environment. She received her Master Recycler certification in the Fall 2018. She suggested that some of the content be arranged in a way that puts the pertinent information towards the top where it will be seen and read first. She also noticed that some of the activities don't exactly go along with the content of the lesson and are broader or generalized. However, she does think it has good potential for being a very useful and relevant resource.

Content Expert 1 had several suggestions to improve the user experience. The Home page could use a more focused and less negative title. He suggested "Plastic- How You Can Change the Worlds Dependency on It". He also didn't know that the site was for a course and thought it seemed abrupt, but he loved the content.

The Navigation could be more obvious, specifically the icons to click. The ease of use to accomplish a task followed the page and how he processes information. He thought the information could be organized in a more obvious way.

The Unit and Lesson pages were described as general and he thought some of the material could use more accurate information. He stated that generalizations are our enemy, and

clear and concise facts need to be presented. He offered to help with information and crafting messages.

Content Expert 2 gave great suggestions to help make the web-based learning system (WBLS) more user friendly. On the Home page, she suggested to move the course objectives and links to the top of the page and the graphics to the bottom or to one side.

Navigation was found to be very easy to understand. The links took her to where they said they would go, and everything was either embedded or a link. She suggested to embed more things but understands that not everything has that capability. Overall, she thought it worked and flowed ok. She also didn't think it is obvious that there were actual pages for Unit 1-4 links in the navigation menu at the top of the page, or that they are entirely necessary.

The Unit and Lesson pages were what was expected. She observed that there was mostly graphics, but nothing seemed unbelievable, and that they were informative, but all over the place. She also overserved that Lesson 1.1 was about refusing, and the quiz was about plastic knowledge.

The following table lists the comments and modifications suggested from the web-design review experts.

| Content Expert 1 | |
|-------------------------|--|
| Task | Comments |
| Home Page | The focus should be in the title. Didn't know the site was for a course, just seemed abrupt. Love the content. |
| Navigation | The icons to click on could be more obvious. The information could be organized in a more obvious way. |
| Unit and Lesson Pages | The content is general and some of the material could use some more accurate information. It was for a general audience. I think generalizations are our enemy. Clear and concise facts need to be presented. |
| Content Expert 2 | |
| Task | Comments |
| Home Page | Move the course objectives and links to the top of the page and the graphics to the bottom or to one side. |
| Navigation | The links took me where they said they would go. Everything was either embedded or a link. |

| | |
|-----------------------|--|
| | <p>It would be better if more things were embedded but not everything has that capability.</p> <p>Overall, it works and flows ok.</p> <p>I don't think it is obvious that there are actual pages for Unit 1-4 links in the navigation menu at the top of the page. I'm not sure they are entirely necessary.</p> |
| Unit and Lesson Pages | <p>It was mostly graphics, but nothing seemed unbelievable.</p> <p>It was informative, but all over the place.</p> <p>Lesson 1.1 was about refusing, and the quiz was about plastic knowledge.</p> |

c. Student User

Completed Documents:

Student Usability Review- Student 1

The potential users are students aged 18-21 that are either high school seniors or recently graduated from high school.

The student was asked to review a web based learning system for Environment Science. I reviewed the tasks below and received permission to observe the student while accessing the learning system. I instructed the student to review the system as they would normally and to think out loud as they worked.

I asked the student to read the required content, follow any links and read any articles, watch all videos, take the pre and posttest, engage in the discussion questions.

The student began at 11:02 by clicking on the link below.

SUMMARY OF RESULTS STUDENT 1: It took about 2.5 minutes to read through the home page. The student asked questions about the links, the student didn't know if they were to follow the links or not. After accessing the first link, "do you know which things are actually made from plastic" the student asked if that was the pretest referenced in step #7. There also was some confusion in how to get back to the WBLMS from the linked pages, it took approximately 20-30 seconds for the student to realize they had to go back to the open browser tab for the Google site. The student clicked on the second link, made the statement, "that's a lot to read" clicked the browser tab to go back to Google Sites and proceeded to Unit 1 at approximately 11:08.

Student paused at objective, scrolled to bottom of page and accessed Lesson 1.1.

11:09 Student clicked on link in lesson 1.1 for "test your knowledge" asked if this was the pretest what the other quiz was. Also asked at end of the quiz about the score- it didn't really score it just provided an answer key. Student proceeded to click on Lesson 1.2 button.

11:12 student clicked on plastic footprint calendar, made comment that was neat, clicked browser tab to return to the site and went to lesson 1.3. Tried selecting something in the Padlet, I advised that feature may not be completed yet. Student advanced to the matching game link. As student proceeded to complete that activity, made the comment, "is this timed? Do you just pass" once completed clicked on the browser tab to return to Google Sites and accessed Lesson 1.4. Student started video at 11:15 of Apple rotting. Scrolled to the bottom of the page, watched the entire Ted talk video, clicked on the 2nd video, seen it was 8 minutes long, and skipped it to go to link for "you think you know about plastic pollution" The page loaded with video and "Quiz" but there was no quiz that the student could find.

At that point the student returned to Google sites and proceeded to follow the links at the bottom of the page following the navigation. At lesson 3.4 it stopped, next page did not advance to another topic. Navigating to top menu bar and through Unit 4, at end of lesson 4.4 "next" advanced to "home" not the discussion for unit 4.

Student 1

Student Usability Review

You have been asked to review a web based learning system for Environment Science. You will be asked to complete certain tasks. This is the first day of the course. You will have your own device to access the web-site. The class meets for 45 minutes every day. You will be in a classroom with other students and the instructor. Please complete the tasks listed. The instructor will be watching and taking notes as you move through the web-based learning system. Thank you for doing this. You are free to do what you like. It is best for our review if you try to act as naturally as you might if you logged into one of your own classes. You are required to read the content, follow any links and read any articles, watch all videos, take the pre and posttest, engage in the discussion questions.

Your Tasks are as follows:

1. Access the web based learning system:

<https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home>

2. Look at the Home Page.

3. Read the information and follow the directions—*there isn't directions to follow.*
4. Proceed to the first unit. - *you read left to right, so have your important info on the left side.*
5. Read the information and follow the directions.

6. Proceed to the first lesson/unit.

7. Take the pretest

8. Read the information

9. Engage in the activity.

10. Take the Posttest

11. Participate in the discussion

take the quizzes?

*move the
left to the
bottom of
page and
click here*

JP.

Thank you for doing this review. Please tell your instructor of you have any problems or concerns while using this site. You did a great job.

Student Check List

there isn't directions or real info to read on this page. people don't read all the pictures. They just scroll..
UNIT 1 OVERVIEW IS TOO MUCH IN YOUR FACE. THIS PAGE CAN BE BASIC. LESS GRAPHS.

Correctly accessed site.

Read information on home page. About how long before they moved on? _____

Correctly accessed first unit

Read information and engaged in the content. About how long did this take? _____

Student #1

~~* * I didn't know about the discussion because at the end of lesson 1.4 it takes you to unit 2. NOT the discussion page!~~

 Watched video Accessed first lesson Read information About how long did this take? _____ Took pre-test Score? _____ Engaged in the activity About how long did this take? _____ Took the posttest Score? _____ Found the discussion question. Participated in the discussion

____ Ease of use (Rating of 1 to 5 with 1 being Easy to use and 5 being Difficult to use)

____ Look and Appeal – the content encouraged exploration of each unit (Scale of 1-5 with 1 being highly encouraged and 5 being not encouraged at all)

Total Time to finish lesson _____

Notes and Observations

padding? what do you do.I like the app

LESSON 1.4 If you don't have a quiz over the video you are watching a student is just going to scroll and not watch the video even more so when a video is 8 min long the info graph isn't needed here. put the apple video @ the bottom of page. also have a vertical layout the blocks back and forth ☺ is too much

lesson 3.4 doesn't take you anywhere. also lesson 3 discussion doesn't have a button TO take you to next unit.

Student #1

sometimes

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|----------------------|----------|---------|-------|-------------------|
| It's is easy to use | | | | X | |
| It's easy to know where you are at on the site | | | | X | |
| It's easy to learn how to proceed through the steps | | | X | | |
| You knew what to do next | | X | | | |
| Can find information quickly | | | X | | |
| The content encourages exploration of the site | | | | X | |
| It's well organized | | X | | | |
| It's clear how screen elements (e.g., pop-ups, scrolling lists, menu options, etc.) work. | | | | X | |

Student Usability Review- Student 2

The potential users are students aged 18-21 that are either high school seniors or recently graduated from high school.

The student was asked to review a web based learning system for Environment Science. I reviewed the tasks below and received permission to observe the student while accessing the learning system. I instructed the student to review the system as they would normally and to think out loud as they worked.

I asked the student to read the required content, follow any links and read any articles, watch all videos, take the pre and posttest, engage in the discussion questions.

The student began at 1:50 pm by clicking on the link below.

SUMMARY OF RESULTS: STUDENT USER 2: It took about 2.0 minutes to read through the home page. The student scrolled to the bottom of the home page and used the mouse to click on the upper horizontal tool bar to access Unit 1. Student quickly skimmed Unit 1, mentioned “the pictures were cool” and that “I really like pictures on websites” and used the mouse to click on the upper horizontal tool bar to access Unit 1 – Lesson 1.1. Student paused at objective, stated really like these small blocks of words and scrolled to bottom of page and accessed Lesson 1.2.

1:52 Student scrolled through content within Lesson 1.3 and pressed next, at 1:53 Student watched video on Apple and plastic bottle. Student scrolled to videos on lifecycle of plastic and story of bottled water, clicked on both – seen their length and clicked off and went to the next lesson. Student then asked about where were any of the quizzes mentioned in the “student tasks” so I directed him back to Lesson 1.1 and the links. Student proceeded to take quiz at 1:57 and finished it at 1:59. During the quiz student made the comment, even if I studied I wouldn’t know the answers to some of these questions. Students stated his results indicated budding activist. Student proceeded to use links to proceed through other lessons and also visited the Discussion area by clicking on it from the upper vertical tool bar.

Student Usability Review

You have been asked to review a web based learning system for Environment Science. You will be asked to complete certain tasks. This is the first day of the course. You will have your own device to access the web-site. The class meets for 45 minutes every day. You will be in a classroom with other students and the instructor. Please complete the tasks listed. The instructor will be watching and taking notes as you move through the web-based learning system. Thank you for doing this. You are free to do what you like. It is best for our review if you try to act as naturally as you might if you logged into one of your own classes. You are required to read the content, follow any links and read any articles, watch all videos, take the pre and posttest, engage in the discussion questions.

Your Tasks are as follows:

1. Access the web based learning system:
<https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home>
2. Look at the Home Page.
3. Read the information and follow the directions
4. Proceed to the first unit.
5. Read the information and follow the directions.
6. Proceed to the first lesson.
7. Take the pretest
8. Read the information
9. Engage in the activity.
10. Take the Posttest
11. Participate in the discussion

Thank you for doing this review. Please tell your instructor of you have any problems or concerns while using this site. You did a great job.

Student Check List

Correctly accessed site.

Read information on home page. About how long before they moved on? _____

Correctly accessed first unit

Read information and engaged in the content. About how long did this take? _____

Student 2

 Watched video Accessed first lesson Read information About how long did this take? _____ Took pre-test Score? 6/12 Engaged in the activity About how long did this take? _____ Took the posttest Score? _____ Found the discussion question. Participated in the discussion1 Ease of use (Rating of 1 to 5 with 1 being Easy to use and 5 being Difficult to use)2 Look and Appeal – the content encouraged exploration of each unit (Scale of 1-5 with 1 being highly encouraged and 5 being not encouraged at all)

Total Time to finish lesson _____

Notes and Observations

Very vibrant, colorful, & simple. I think a couple more interactive quizzes + games to go along with the videos would help!

Student

| | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-------------------|----------|---------|-------|----------------|
| It's is easy to use | X | | | | X |
| It's easy to know where you are at on the site | X | | | | X |
| It's easy to learn how to proceed through the steps | X | | | | X |
| You knew what to do next | X | | | | X |
| Can find information quickly | X | | | | X |
| The content encourages exploration of the site | | | | X | |
| It's well organized | | | | X | |
| It's clear how screen elements (e.g., pop-ups, scrolling lists, menu options, etc.) work. | | | | | X |

4. **Ideas for modification for design products:** We are going to make changes to our WBLS using the suggestions from our experts. We will make some tutorial or help videos to guide the student in how to use some of our media such as Padlet, the Discussion Board and general guidelines for the course. More specific information will be written to accompany the graphics and videos. Also, there will be assessments at the end of each unit to help the student focus on what content is required to be learned.

Usability Test

Introduction

This course was designed as a web based learning system geared towards potential users aged 18-21. This course could be used to satisfy Environmental Science Requirements at the High School level or used by Recycling organizations as a training tool for young adults. The course focuses on recycling, specifically plastics, and defines what it means to refuse, reduce, reuse, and recycle plastic. Videos, articles & activities are incorporated to help students understand the importance of each of these topics and allow them opportunities to discuss and interact among their peers.

The usability test was conducted onsite at The University of Akron in an office environment using one Dell computer with a Windows 7 operating system and one MacBook Air laptop. The test administrator was present in the testing room and was available to answer questions during the testing session. The test administrator took notes about the participant's reactions and feedback before, during and after the session. The purpose of the test was to assess the usability of the web interface design, information flow, and information architecture.

There were two students who volunteered to participate in the user review who are recent graduates from high school (within the past year) and they still fall into the target audience for this course. Student A is a male student, who graduated from a city high school, was involved with theatre, sports, and graduated with honors. Student B is a female student who graduated from a small local high school and was involved in many activities from track to cheer and graduated with honors. They both are very proficient with the computer and have had experience with online components of course work in their high school classes.

In general, both students found the site to be clear, straightforward, and easy to use.

The test identified only a few minor problems (some of which we were aware of) including:

- Lack of a site index.
- Lack of entries under Help menu
- Discussion entries were linked together
- Lack of Padlets where Padlets were indicated to be
- Minor misspelling within the content

This document contains the student feedback and recommendations for improvement.

Methodology

During the session, the test administrator explained the test session and provided both students a written step-by-step guide and review sheet to fill out while accessing the site. The students were asked to access the web based learning system, read the information on the home page, follow the directions on the Home

page and proceed to the first unit. They were also given specific tasks they were asked to accomplish, such as "locate and respond to quiz for unit 2", along with rating their experiences on the site. They were asked to verify the video and article links but due to time constraints were not asked to watch the video's in their entirety. They were asked questions about whether the site was hard to navigate, contained too much scrolling or too much reading. The test administrator was present during the session and had their own checklist for each student that consisted of documenting timeframes, information accessed and other notes and observations based on students "think out loud" thoughts or suggestions. Upon completion of the tasks, students provided feedback for what they liked most and least about the website, and recommendations for improving the website.

Results

Both students were able to successfully complete the specific task related items. They were then asked to rate the ease or difficulty of completing the task based on three factors:

- Was it easy to find the information from the Home Page
- Were they able to keep track of where they were at on the site, follow the links, and return to the site
- They could accurately predict which section would contain the information they were looking for

They used a 5 point rating scale ranged from 1 (strongly DISAGREE) to 5 (Strongly Agree).

| |
|--|
| <input type="checkbox"/> Correctly accessed site. |
| <input type="checkbox"/> Read information on home page. |
| <input type="checkbox"/> Read information and engage in the content on the home page. |
| <input type="checkbox"/> Correctly accessed first unit; use the navigation button to proceed to the next page. |
| <input type="checkbox"/> Locate and view lesson 3.3 |
| <input type="checkbox"/> Locate and reply to a discussion question |
| <input type="checkbox"/> Locate and respond to assessment quiz for unit 2 |
| <input type="checkbox"/> Locate and view the "Take a trip" video |
| <input type="checkbox"/> Locate the Ohio Recycling Facility Directory |

Both students agreed it was easy to find information from the home page in all areas except for locating and replying to a discussion question. Only one student found it easy to find and reply to discussion information from the home page, the other student rated it as neutral.

Both students agreed it was easy to keep track of where they were at on the site, follow the links, return to the site, and both agreed they were able to accurately predict which section would contain the information they were tasked to locate.

Time on Task

Both students began reviewing the site at 10:40am. From the time they accessed the home page it took them approximately 20 seconds to read the information and proceed to the linked article and test your knowledge quiz. They were each able to access and take the quiz. They returned to the Home page and were both able to easily follow the navigation button to the next page and start Unit 1, lesson 1.1. They followed the instructions provided to them to view the links for videos, articles and participate with certain activities. Student A finished reviewing the entire site at 11:40am and Student B finished at 12:00pm.

Overall Metrics

Overall Ratings

After the students completed reviewing all four units, they were asked to evaluate their experience with the site based on a 5 point rating scale ranged from 1 (strongly DISAGREE) to 5 (Strongly Agree).

These site experiences included:

- Hard to navigate
- Too much scrolling
- Not well organized
- Too much reading
- Text too small
- Learning content was not appropriate to unit objectives
- Too many graphics
- Not enough graphics
- Easy to use
- Easy to know where you are at on the site
- Easy to know how to proceed through the steps.
- You know what to do next
- Can find information quickly
- The content encourages exploration
- It's well organized
- It's clear how elements (pop-ups, scrolling lists, menu options, etc.) work
- Look & Appeal encourage exploration

The students were in agreement with most of the experiences. They agreed the site was not hard to navigate, was well organized, they knew what to do next and could find the content. They thought the content was appropriate however they both also agreed it contained too much reading. When they were asked to clarify their answers about the reading they both said the links to the articles contained some very lengthy articles and they would only skim those pieces.

Likes, Dislikes, Recommendations

Upon completion of the tasks, the students provided feedback on what they liked most and least about the website, and recommendations for improving the website.

Liked Most

The following comments capture what the students liked most:

- Games are a fun break!
- Interactive games are always a plus!
- The plastic calculator is cool!
- The Plastic milk bottle hacks video is one to watch.

Liked Least

The following comments capture what the students liked the least:

- This link is to a whole book - I won't read any of it!
- Clicking on the links to read articles - just put the information on your site
- Some of the articles and videos' are pretty long
- Why go read someone else's article?

Additional discussion with the students revealed they enjoyed certain videos that contained content containing activities they could do to reuse plastics within their households, such as the plastic bag mats and the video that showed "What else you can do with plastics". They also seemed to enjoy shorter videos that revealed something they had not seen before, they both commented on the virtual tour of a recycling facility and how they were unaware of how trash was sorted before seeing that and found that video really interesting.

Both students enjoyed the interactive matching game and stated they really liked that type of activity for learning the different types of plastic symbols.

They said the website was easy to understand and find their way around. They pointed out a few things that we were aware of, such as the "Help" page was not populated, the Site map was not populated, missing Padlets in certain lessons. They also asked about Unit 4 having a wrap-up test before the assessment, which we also are in the process of fixing as well.

Recommendations

The immediate items will need resolved:

- Adding the information to the Help page and the Site map.
- The padlets will need added to the additional lessons.

One thing we discovered was our discussion pages are linked, so when Student A replied to a Discussion question for Unit 2, it populated throughout all the Unit discussions. Student B also had an issue when trying to post to the discussion. We also will need to take into consideration the comments about the content links and perhaps converting some of the outside content into smaller chunks of information directly found on our site. The other thing to consider is the students were trying to absorb all the information in one setting. These units and lessons were not meant to be taught in one setting. So the idea of presenting this in a class format where the information is spread out over a longer time frame then one hour may make the links to the outside information not as overwhelming. We will follow up with our student volunteers to see if considering those changes their opinion on the content at all.

Student Usability Review

You have been asked to review a web based learning system for Environment Science. You will be asked to complete certain tasks. You will have your own device to access the web-site. You will be in a classroom with other students and the instructor. Please complete the tasks listed. The instructor will be watching and taking notes as you move through the web-based learning system. Thank you for doing this. You are free to do what you like. It is best for our review if you try to act as naturally as you might if you logged into one of your own classes. You are required to read the content, follow any links and read any articles, watch all videos, take the pre and posttest, engage in the discussion questions.

Your Tasks are as follows:

1. Access the web based learning system: <https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home>
2. Look at the Home Page.
3. Read the information and follow the directions
4. Proceed to the first unit.
5. Read the information and follow the directions.
6. Proceed to the first lesson.
7. Read the information
8. Participate in the remaining three units and lessons.
9. Provide feedback during and after regarding your experience using the site.

Thank you for doing this review. Please tell your instructor of you have any problems or concerns while using this site. You did a great job.

Start time: 10:40am

End time: 12 : 00 pm

Please complete these specific tasks while evaluating the site. Place a checkmark by the tasks once completed. After completing each task, rate the ease or difficulty of completing the task for the factors below based on a 5 point rating scale ranged from 1 (strongly DISAGREE) to 5 (Strongly Agree).

| <input checked="" type="checkbox"/> Correctly accessed site. | Easy to find the information from the Home Page | I was able to keep track of where I was at on the site, follow the links, and return to the site | I could accurately predict which section would contain this information |
|---|---|--|---|
| <input checked="" type="checkbox"/> Read information on home page. | 5 | 4 | 5 |
| <input checked="" type="checkbox"/> Read information and engage in the content on the Home page. | 9 | 5 | 5 |
| <input checked="" type="checkbox"/> Correctly accessed first unit; use navigation button to proceed to next page. | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and view lesson 3.3 | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and reply to a discussion question | 3 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and respond to assessment quiz for unit 2 | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and view the "Take a trip" video | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate the Ohio Recycling Facility Directory | 5 | 5 | 5 |

Which of the following best describes your experience with the site:

| Description: | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|----------------------|----------|---------|-------|----------------|
| Hard to navigate | | X | | | |
| Too much scrolling | | | | | |
| Not well organized | | X | | | |
| Too much reading | | | | | X |
| Text too small | | | X | | |
| Learning content was not appropriate to unit objectives | | X | | | |
| Too many graphics | It was a good amount | X | | | |
| Not enough graphics | | | X | | |
| Easy to use | for the most part | | | X | |
| Easy to know where you are at on the site | | | X | | |
| Easy to know how to proceed through the steps. | | X | | | |
| You know what to do next | | X | | | |
| Can find information quickly | | | | X | |
| The content encourages exploration | | | | X | |
| It's well organized | mostly! some blips. | | X | | |
| It's clear how elements (pop-ups, scrolling lists, menu options, etc.) work | | | | | |
| Look & Appeal encourage exploration | | | | | X |

What did you like best about the site? games are fun break .

What did you like least about the site? clicking on links to read articles.
just put that info on your site

Is there anything you feel is missing on the site? (Content or site features/functions)

missing padlets / places to turn in your work .

Notes and Observations

lesson 3.3 there isn't a padlet.

lesson 4.1 no padlet, 4.2,

have each unit discussion after each test. I wouldn't know to go to that tab.

I made an account for the discussion question but I was not able to post my comment.

Home page "video" was actually an article

Student Usability Review

You have been asked to review a web based learning system for Environment Science. You will be asked to complete certain tasks. You will have your own device to access the web-site. You will be in a classroom with other students and the instructor. Please complete the tasks listed. The instructor will be watching and taking notes as you move through the web-based learning system. Thank you for doing this. You are free to do what you like. It is best for our review if you try to act as naturally as you might if you logged into one of your own classes. You are required to read the content, follow any links and read any articles, watch all videos, take the pre and posttest, engage in the discussion questions.

Your Tasks are as follows:

1. Access the web based learning system: <https://sites.google.com/zips.uakron.edu/recycle-wbls-summer-19/home>
2. Look at the Home Page.
3. Read the information and follow the directions
4. Proceed to the first unit.
5. Read the information and follow the directions.
6. Proceed to the first lesson.
7. Read the information
8. Participate in the remaining three units and lessons.
9. Provide feedback during and after regarding your experience using the site.

Thank you for doing this review. Please tell your instructor of you have any problems or concerns while using this site. You did a great job.

Start time: 10:40 AM

End time: 11:40 AM

Please complete these specific tasks while evaluating the site. Place a checkmark by the tasks once completed. After completing each task, rate the ease or difficulty of completing the task for the factors below based on a 5 point rating scale ranged from 1 (strongly DISAGREE) to 5 (Strongly Agree).

| <input checked="" type="checkbox"/> Correctly accessed site. | Easy to find the information from the Home Page | I was able to keep track of where I was at on the site, follow the links, and return to the site | I could accurately predict which section would contain this information |
|---|---|--|---|
| <input checked="" type="checkbox"/> Read information on home page. | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Read information and engage in the content on the home page. | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Correctly accessed first unit; use navigation button to proceed to next page. | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and view lesson 3.3 | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and reply to a discussion question | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and respond to assessment quiz for unit 2 | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate and view the "Take a trip" video | 5 | 5 | 5 |
| <input checked="" type="checkbox"/> Locate the Ohio Recycling Facility Directory | 5 | 5 | 5 |

Which of the following best describes your experience with the site:

| Description: | Strongly Disagree | Disagree | Neutral | Agree | Strongly Agree |
|---|-------------------|----------|---------|-------|----------------|
| Hard to navigate | ✓ | | | | |
| Too much scrolling | | | ✓ | | |
| Not well organized | | ✓ | | | |
| Too much reading | | | | ✓ | |
| Text too small | | ✓ | | | |
| Learning content was not appropriate to unit objectives | ✓ | | | | |
| Too many graphics | | ✓ | | | |
| Not enough graphics | | ✓ | | | |
| Easy to use | | | | | ✓ |
| Easy to know where you are at on the site | | | | | ✓ |
| Easy to know how to proceed through the steps. | | | | | ✓ |
| You know what to do next | | | | | ✓ |
| Can find information quickly | | | | | ✓ |
| The content encourages exploration | | | | | ✓ |
| It's well organized | | | | | ✓ |
| It's clear how elements (pop-ups, scrolling lists, menu options, etc.) work | | | | | ✓ |
| Look & Appeal encourage exploration | | | | | ✓ |

What did you like best about the site? Interactive games are always a plus!

What did you like least about the site? Some of the articles are pretty long. Videos too

Is there anything you feel is missing on the site? (Content or site features/functions) No (feel all bases are covered with what is provided)

Notes and Observations

Implementation & Summative Evaluation

Implementation Plan

Our WBLS platform will be implemented with the University of Akron - Ohio. The plan will be implemented for first- and second-year students. Their learning abilities range from gifted to special education and the majority of the students perform at a grade above average. The students are familiar with using technology in their learning as well as competencies in collaborative online learning approaches. They can use Chromebooks, Google Sites, and navigate the Internet. The students will have access to the WBLS through their Chromebooks. The students are encouraged to complete their tasks within and without school hour; especially the reading assignments can be done outside the school hours. Full implementation will be carried out in August 2019.

Time Schedule of Implementation

Prior to commencing week 1 of implementing the WBLS, students will be required to meet the following aspects:

1. Read the home page and explore the WBLS site
2. Go through and understand the course objectives
3. Read their responsibilities as stated in the home page
4. Observe, evaluate, and understand the setup of the modules
5. Find the Help Page and view the Help Tutorials and the Site Map
6. Find the contact information in case of any clarifications
7. Find the Open Search Bar for easy navigation

| | |
|---------------|---|
| Week 1 | To complete week 1 of this module, students will be required to |
|---------------|---|

| | |
|---------------|---|
| | <p>carry out the following:</p> <ul style="list-style-type: none"> • Read through the articles on the WBLS platform focusing on the plastic ménage and the need to do something • View the video on the home page of the WBLS platform providing an overview of the impact of plastics and plastic waste • Carry out some preparatory quiz on the link provided on the home page of the WBLS platform • Post their discussion to the Discussion Board under Discussions • Complete two reply comments to the Discussion Board post. |
| Week 2 | <p>To complete week 2 of this module, students will be required to carry out the following aspects of - Unit 1: Refuse.</p> <ul style="list-style-type: none"> • Assess the impact of plastic on the environment by going through the material provided. • Learn about and participate in calculating the impact of using plastics. • Explore the alternatives to the use of plastics. • Learn about the life cycle of plastics. • Take part in Unit 1 assessment and post the results in the padlet on the WBLS platform. • Participate in Unit 1 discussion through the Discussion Board. |
| Week 3 | <p>To complete week 3 of this module, students will be required to carry out the following aspects of – Unit 2: Reduce.</p> <ul style="list-style-type: none"> • Learn five ways to manage plastic waste in your life. • Learn ways to identify different symbols of plastics. • Learn about methods to plan on reducing waste by acquiring the skills to calculate personal plastic waste. • Post five different resources explaining about reducing plastic waste. • Carry out Unit 2 Assessment and post the results in the padlets on the WBLS platform. • Participate in Unit 2 discussion through the Discussion Board. |
| Week 4 | <p>To complete week 4 of this module, students will be required to carry out the following aspects of – Unit 3: Reuse.</p> <ul style="list-style-type: none"> • Learn the methods and strategies important in reusing plastic items. |

| | |
|---------------|--|
| | <ul style="list-style-type: none"> • Carry out research and provide reports on three different approaches to reuse plastic items. The reports are posted on the Padlet on the WBLS platform. • Conduct research and post 5 sources focusing on reusing plastics on the Padlet on the WBLS platform. • Evaluate and present something that reuses a plastic item in a different way than originally intended. The students can share this in the form of a video, written review, or photo on the Padlet. • Carry out Unit 3 Assessment and post the results in the padlets on the WBLS platform. • Participate in Unit 3 discussion through the Discussion Board. |
| Week 5 | <p>To complete week 5 of this module, students will be required to carry out the following aspects of – Unit 4: Recycle.</p> <ul style="list-style-type: none"> • Write a short informational essay and cite evidence regarding plastic waste. • Share your success in recycling by posting vides, pictures, or stories on the Padlet. • Explore the history of plastic use and pollution, and list five pros and cons of using plastics on the Padlet. • Establish, through research, the monetary and environmental costs of plastic recycling. • Carry out research and report on the local resources to recycle – the list should be done on the Padlet. • Carry out Unit 4 Assessment and post the results in the padlets on the WBLS platform. • Participate in Unit 4 discussion through the Discussion Board. |

Personnel and Duties Allocation

| Personnel | Duties |
|---------------------------------------|--|
| <u>Content Expert</u> Steven Tharp | <ul style="list-style-type: none"> • Analyzed and reviewed content of each module to ensure they met the outlined learning objectives of the module. • Ensured learning objectives were measurable and made suggestions for improvement. |

| | |
|---|--|
| | <ul style="list-style-type: none"> Provided an overall look at the website, checking for spelling and grammatical errors. |
| <u>Content Expert</u> Nikki Smalley | <ul style="list-style-type: none"> Evaluate the structure, design, and format of the WBLS platform. Assessed the buttons, links, pull-down menus, and embedded resources (text and videos), as well as the Discussion Board. Ensured that the buttons, links, pull-down menus, and embedded resources (text and videos), as well as the Discussion Board were functional. Assessed the navigability of the WBLS platform as a whole. |

Learning Tasks vs Facilitation/Strategies

| Learning Tasks | Facilitation Strategies |
|--|---|
| Exploring the WBLS' objectives/expectations and Responsibilities. | <ul style="list-style-type: none"> Provide an overview of the core objectives and responsibilities for the students. Provide time to explore the WBLS Provide instructions with clarity Provide the Help Page along with Contact information |
| Reading the Learning Materials on each Unit | <ul style="list-style-type: none"> Offer Clear Objectives and Responsibilities Provide clear and straight-to-the-point learning materials Provide embedded resources such as links, videos, and HTML files Provide a checklist of the tasks to be completed for every unit Provide the deadlines for each unit |
| Completing each Unit's Assessments on the Padlet | <ul style="list-style-type: none"> Provide clear instructions regarding the assessments Provide additional resources to help in building the Google Site |

| | |
|---|--|
| | and other assessments |
| Taking part in the Discussion Boards | <ul style="list-style-type: none"> • Provide embedded Padlets for the discussions and collaborative involvement • Provide clear directions and due dates for the assessments • Encourage each student to provide responses to the posts |
| Additional Resources | <ul style="list-style-type: none"> • Provide any needed additional resources to enhance comprehension (videos, PDFs, and links) |

Summative Evaluation Plan

The core target of summative evaluation is to establish the usability of our WBLS platform and ensure that it works in an efficient manner and meets the needs, expectations, and preferences of the targeted users – achieve the goals set in the design phase.

The evaluation will focus on the different aspects of technology adopted into the WBLS platform, and thus help in verifying whether the final project met the objectives of the course.

In the course of the summative evaluation, there will be an investigation of user responses to the use of the WBLS and the areas needing improvements. Data will be collected to develop a baseline for further evaluation and thus improve the WBLS further.

Materials for Examination

| Materials for Examination | |
|---------------------------|--|
| Design Plans | <ul style="list-style-type: none"> • Objectives • Responsibilities |

| | |
|------------------------------|--|
| | <ul style="list-style-type: none"> • Instructional Strategies • Motivational Strategies |
| Prototype and Website | <ul style="list-style-type: none"> • Interface • Navigation features • WBLS-Google Site |

Preliminary Planning for Summative Evaluation

| Evaluation Criteria | Sample Questions | Methods and Tools |
|----------------------|---|--|
| Effectiveness | | |
| Goals | <ul style="list-style-type: none"> • Are the objectives and responsibilities easy to understand? • Are the objectives and content consistent with the method of delivery? | <ul style="list-style-type: none"> • SME Expert review through a survey and interview • Interviews, surveys, and extant-data-assessment scores |
| Content | <ul style="list-style-type: none"> • Do the instructional approaches and activities provoke reflection and thinking? • Are the activities “promoting learning” | <ul style="list-style-type: none"> • SME Expert review through a survey and interview • Observation of student engagement through data collected from the site’s clicks, discussion board posts, replies, and the assessment on each unit. |
| Technology | <ul style="list-style-type: none"> • Can all learners access the available materials? • Are the technologies applied functioning properly? • Is the WBLS platform compliant with copyright and intellectual property (IP) regulations? | <ul style="list-style-type: none"> • Instructional Design (IP) Expert review through a survey, interview, and an assessment of the checklist of navigation • End-user reviews through a survey and interview • Verifying the citations provided on the WBLS |

| | | platform |
|-------------------|--|--|
| | Efficiency | |
| Goals | <ul style="list-style-type: none"> • Are the goals stated with clarity? • Is the purpose concise and clear? • Are the instructional goals and content consistent? | <ul style="list-style-type: none"> • SME Expert review through a survey and interview • Instructional Design (IP) Expert review through a survey, interview, and an assessment of the checklist of navigation • End-user reviews through a survey and interview |
| Content | <ul style="list-style-type: none"> • Is the WBLS platform appropriately addressing the subject? • Is the content presented in a clear and appropriate manner? | <ul style="list-style-type: none"> • SME Expert review through a survey and interview • Instructional Design (IP) Expert review through a survey, interview, and an assessment of the checklist of navigation |
| Technology | <ul style="list-style-type: none"> • Does the WBLS provide access to the instructor and other learners? • Do the technology tools function efficiently and easily? | <ul style="list-style-type: none"> • Instructional Design (IP) Expert review through a survey, interview, and an assessment of the checklist of navigation • End-user reviews through a survey and interview |
| | Appeal | |
| Goals | <ul style="list-style-type: none"> • Are the goals authentic and relevant to learners? | <ul style="list-style-type: none"> • Instructional Design (IP) Expert review through a survey, interview, and an assessment of the checklist of navigation • End-user reviews through a survey |

| | | |
|-------------------|--|--|
| | | <p>and interview</p> <ul style="list-style-type: none"> • SME Expert review through a survey and interview |
| Content | <ul style="list-style-type: none"> • Is the content challenging and engaging? | <ul style="list-style-type: none"> • End-user reviews through a survey and interview • SME Expert review through a survey and interview |
| Technology | <ul style="list-style-type: none"> • Is navigation accessible to all users equally? • Are there coding errors? | <ul style="list-style-type: none"> • Instructional Design (IP) Expert review through a survey, interview, and an assessment of the checklist of navigation • End-user reviews through a survey and interview |

Who are the stakeholders?

The increasing importance of WBLS means that more students and teachers are exposed to these platforms in their respective day-to-day learning and teaching processes. Therefore, the primary stakeholders in this WBLS project are the instructors and individuals in the group running, updating, and troubleshooting the WBLS platform. The technical staff at the institution, the content designer and the teacher will be the people who will make the decisions on how the WBLS will be used in the classroom and redesigned and updated during the day to day use.

The secondary stakeholders in the WBLS are the students, and anyone who participates in the activities, readings, and assessments. School administrators will be secondary stakeholders because they will want to ensure that the content of this WBLS meets state standards for education. Data will be gathered and analyzed by the primary

stakeholders to determine the effectiveness of the WBLS on meeting the lesson objectives.

What is being evaluated?

The effectiveness and relevance of the WBLS is being evaluated for its importance to assessing, understanding, and taking action(s) to prevent the continued use of plastics and thus help mitigate the pollution and biodiversity impact they are having in the US and across the world as well. It is being evaluated for its impact on the perceptions and behavior of students regarding the use of plastics.

Who are the evaluators?

We consulted content experts. Our content expert, Steven Tharp, is the Operations Coordinator for the Stark - Tuscarawas - Wayne Solid Waste District which manages the collection of garbage and recyclables for Stark, Tuscarawas, and Wayne counties. He was also a member of the committee that organized the first Master Recycler Certification class for the district, as well as a Master Recycler himself. Nikki Smalley has completed the requirements to be a Master Recycler, another one of our content experts.

We also consulted web designers, Eric Kreider and Anthony W. Serpette, who was recruited to assess our design. Both work for University Communication and Marketing at the University of Akron. Eric is the Director and Anthony is the Assistant Director for Web Services for the University of Akron.

What are the evaluation methods and tools?

The evaluation tools and methods used include surveys, interviews, observations, and logs. The surveys were used to provide feedback for the evaluators to analyze. The other tools were also used to collect further feedback on the WBLS platform.

How are data collected and analyzed?

The primary sources of data collection include surveys, observations, and interviews. Interviews will be conducted by researchers and transcribed as the core findings of the study. Once collected, the data will be organized into the criteria of appeal, efficiency, and effectiveness.

How are evaluation results reported?

A summary report document will be utilized to evaluate and make sense of the results. This document can also be shared with other stakeholders involved in this study and who will be impacted by the results of the WBLS. Google Forms and Google sites will have analytics that can be collected and analyzed for further review.

Reflection of Designing and Developing the WBLS

Initial Design Ideas

Description: The initial design of our website was based on universal design and web design standards as suggested by Steven Krug in the book “Don’t Make Me Think”. He suggests that all navigation and content be placed so that the end user knows exactly where to click and what to expect on that page. The initial design was set up to adhere to web site standards and universal design. This design was restricted to the parameters of Google Sites.

The design of the page has a header with the name of the website at the top. The navigation is across the very top of the page with drop down menus for each module. The content is placed in a 2 column grid system. All Headlines, subheads, and body text are placed on the right side of the column. All the graphics, videos, and links to other resources are placed on the left side of the page. Activities that are embedded into the webpages take up the whole page for ease of use. The color scheme was based on the colors associated with Earth and the environment, green, blue, and brown.

Impact: We have learned from this design experience that web design needs to be fluid. The initial idea is a great starting point but you have to be flexible when adding content and information. You must have a basic structure for each page in mind and all of the text, colors and grid must be the same throughout all pages. This helps the user learn how to use your site and be able to navigate to where they want to be. The peer review of our initial site had some positive feedback. We found that the navigation was easy to use, but some of the content was confusing and some of the links and activities did not work. So, your design must change to fit the function of the website. Some changes in color, or layout is expected so that your pages are easily accessible.

Intent: In the future, when designing web pages for a WBLS, we will consider the platform where the web site will be developed and its restrictions and parameters. The initial design of the content was a good starting point. Having expert web designers critique our site was very helpful. We will plan on more expert web designer review during the different stages of our design to help us stay on track during our process of web design.

How Ideas Changed/Modified Through the Design and Development Process

Description:

Ideas for the WBLS changed throughout the design process from our initial development and design as we acquired feedback from our peers, instructor and as we began our expert reviews. Some of our original thoughts about our design such as:

- the target audience,
- the design principles of the site
- Developing the learning content

These three principles changed as we continuously transformed and improved our WBLS project. In the beginning, we structured our site for adult learners, but found our focus on young adults and high school learners to be an appropriate target audience. The design principles of the site changed as we used more white space, incorporated larger chunks of text, provided better directions and incorporated easier menu options. The learning content developed as we determined how to best challenge the learners knowledge but keep the information interesting and on topic

Impact: We learned when designing a WBLS it's important to keep content and user experts available to help with revisions for items you may not notice. Just because you might like something doesn't mean it will work for the target audience. Consistent and valid feedback provides opportunities to develop and revise the WBLS site so it stays current, broken links can be identified and changes can be made to improve the content.

Intent: We intend to identify opportunities, whether they are in Education or Private Industry, to improve systems of a WBLS or other training system whether it's in the design or development stage by utilizing user opinions, content experts and usability tests.

Reasons for Changing/Modifying Ideas

Description:

We now know that our ideas will evolve throughout the design process and that feedback is critical to that process.

Impact:

We were excited to share our initial ideas with ours peers so that they had the opportunity to see the type of web based learning system we wanted to create. We thought our idea was relevant and useful and could be geared toward a broad audience.

We think that by having the opportunity for our peers review our ideas initially helped with the process before sharing our ideas with users and experts. After we conducted our reviews, our foundational ideas didn't change as much as ideas within content areas, ideas for layout, and ideas for functionality. We had to make changes based on the feedback so that certain things made sense, the user could flow through the site easily, and so aspects of our site actually worked the way we wanted them to.

We understand the importance of feedback to the overall design process. Without it, we would not be able to see the project from different points of view. It's not just about figuring out what's not working with the site, there are many other important factors such as aesthetic, flow, functionality, content, reliability, and relatability.

Intent:

We plan to continue to change and modify our ideas as necessary in order to allow our WBLS to grow and continue to be a relevant learning tool. We will consider feedback not just during the development process, but through implementation and evaluation as well. It is our goal to make sure that through our ideas in combination with the ideas of others that we create and maintain a WBLS that is sustainable for learning.

What We Learned from WBID Process

Description: The process of designing a WBID changed over time. The focus was on establishing a design that takes into account the levels of cognitive and metacognitive activity incorporated into the learning process. Overall, we aimed to establish a platform that encouraged student-centered approaches and an active learning environment as well. Moreover, we also sought to develop a design that offered a way to not only provide a medium that supports learning but also one that tracks the learning process, skills, and establish gaps, if any, in knowledge. We also sought to ensure the design allows time for reflection in the learning process, bolsters the degree of participation and collaboration, and thus enhances the learning process.

Impact: We have learned from this design process that a WBID has to provide an effective combination of technology, learning materials (content), and willing users into an effective and interdependent dynamic. This means that the design has to take into account the needs of the users, availability of the targeted technology, and the ability for collaboration and knowledge transfer to the users. We also learned that, although a WBID can offer an unstructured model, it is important to provide some structure to the process, which will guide the user(s) towards the targeted objectives. This way, the levels of progress can be measured through the collection of targeted data.

Intent: We intend to continuously assess the design in accordance to the available technology, accessibility to the targeted users, and the evolving needs of the users. Although it is impossible to predict how learners process information, interact, and employ instructional material, we will endeavor to offer instructional material that offers opportunities and is useful for learners with different learning abilities and styles. We will also adopt an agile stance, with an eye of improving user experience and the capacity to meet the core objectives for the platform and users.