

FORMATIVE EVALUATION PLAN

GRANVILLE ACADEMY AND GMU COLLABORATION

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Formative Evaluation Plan

A formative evaluation plan describes the steps that will be included in the formative evaluation process. Formative evaluations are conducted to determine the strengths and weaknesses of instruction while the instruction is in its emergent stages. The purpose of formative evaluation is to amend the instruction before its final production to increase the effectiveness and appeal. (Tessmer, 1993)

Evaluation goals

The foremost goal of the formative evaluation is to improve the effectiveness and efficiency of the instruction. To reach the high level goal of improving the effectiveness and efficiency of the instruction, four sub-goals will need to be addressed. The GMU team will conduct a formative evaluation to identify deficiencies in learning, locate ease of use problems, evaluate the efficiency of the instruction, and analyze instructional strengths.

Evaluation resources and constraints

Resources-Forces promoting project

- Granville Academy students will be available for one-to-one evaluations
- Granville Academy of Northern Virginia president embraces the formative evaluation process
- Granville Academy of Northern Virginia president supports the use of the web as a medium
- A small group of students will be available for usability and ease of use testing
- Granville Academy of Northern Virginia president has access to experts who can participate in the evaluation process

Constraints- Forces hindering project

- Evaluations to occur within the project scope will need to be completed on a prototype with limited content and incomplete functionality.
- Not enough time to conduct several small group and one-to-one evaluations nor field test. This plan includes recommendations for evaluations that would need to be completed beyond the project scope.
- Expert reviews may have to be conducted via mailed surveys and telephone calls

Task Analysis of the Instruction

Objectives and sub-objectives of the learning

Identify and recall Black business history facts in the following categories:

People (leaders and entrepreneurs)

Black Organizations/ Institutions (businesses, business organizations, conferences, Historically Black Colleges

Literature (autobiographies/biographies)

Enabling objectives

- Name people who have contributed to the history of Black business.
- Recall biographical information about African American business owners and entrepreneurs.
- Identify business organizations and institutions founded or run by African Americans
- Recall business organizations and institution's purposes/contributions to African American business history.
- Name famous graduates from Historically Black Colleges and Universities.
- Recall African Americans who were the first to succeed professionally or academically in the business world.
- Identify authors who have published books about African Americans and or their lives.
- Identify books that have been written about black entrepreneurs

Describe commonalities among black business leaders

Enabling Objectives

- Identify common traits among successful black businessmen and women
- Compare experiences of black business leaders' ascents to success
- Compare levels of education and educational institutions of black business leaders
- Categorize black business leaders by industry
- Categorize black business leaders by chronology

The students will enjoy learning about Black business history while building awareness to the fact that there is a long history of African Americans involved in a variety of different businesses.

Enabling objectives

- The students will attend to and pursue knowledge of Black business history through the use of the instructional website.
- The students will willingly seek information about Black business history and provide responses to questions through the instructional website.
- The students will contribute a question to the instructional website that will require them to synthesize what they have learned.

- The students will enjoy learning about Black business history.

Tasks

The learners will:

- Read online biographies
- Read and respond to questions presented in a treasure hunt and quiz format
- Access Treasure Hunt
- Access Quiz
- Click links to visit external websites
- Read information presented on external websites to acquire information that will enable them to answer questions
- Compare, contrast, and identify black businesses, entrepreneurs, and organizations
- Input answers to questions using mouse and keyboard
- Read feedback to answers

Learner Entry Level Skills

To be successful using the instructional website the learners should be able to:

- Read at an eight grade reading level
- Use a computer keyboard and mouse
- Navigate a website using navigational buttons
- Navigate a website using links
- Search the web
- Print a web page or document

Learning environment

The learning will take place wherever students have access to an internet accessible computer. Preferably the students will use a home computer or public library computer to access the internet. A computer that can access the internet is pertinent since the instruction is completely web based. The students will need to be able to read and respond to information presented on the computer monitor. Since the students will pace themselves and interact with the website individually, ease of use is a critical factor. The formative evaluation will address ease of use concerns as well as identify possible problems related to the learning environment.

Media characteristics

The primary media delivery format is the web. The media attributes that are critical to the use of this website will be evaluated. These attributes include:

- Internet access (high speed, dial up)
- Screen size
- Text size
- Use of video
- Graphics

Information sought from the evaluation

Adapted from *Types of information sought from a formative evaluation* (Tessmer, 1993)

Learning effectiveness

- Effectiveness of strategies
- Amount of practice
- Quality of feedback
- Quality of learner interactions
- Coherence of graphics
- Clarity of writing
- Sequencing of content

Learner interest/motivation

- Interest in content
- Level of learner challenge
- Willingness to learn more
- Willingness to use
- Perceived value of learning
- Time spent learning

Content quality

- Content accuracy
- Content completeness
- Redundant or unessential content

Technical quality

- Visual quality
- Effective use of media

Implementability

- Learner ease of use
- Learner willingness to use
- Fit to learning environment
- Administrative acceptance
- Support requirements

Instruction to be evaluated

For the formative evaluation that will occur within the scope of this project, the top-level pages in the story board/ prototype will be evaluated. These include the home, timeline, industry, trivia game, reference materials, sponsors, contact us, and help pages. Five of the ten biographical pages, including the treasure hunt and quiz, will also be evaluated (Content for the remaining five biographies will not be available within the scope of the prototype. These pages will be identical to the first five in structure and graphical layout). The functionality of the trivia game will not be evaluated as this is beyond the scope of the prototype.

The GMU team recommends that formative evaluation iterations planned beyond the current scope of this project incorporate evaluation of content for the additional biographies and evaluate both the content and other intrinsic and performance characteristics of the trivia game.

Stages and subjects for the evaluation

The five phases that can be incorporated into a formative evaluation include self-evaluation, expert reviews, one-to-ones, small group evaluation, and field tests. The GMU Team's evaluation plan includes each of these evaluation phases, although not all of them can be implemented during the current project.

The following outline describes what the GMU team expects to learn from each phase of the formative evaluation, the essential evaluation participants, the data gathering tools, and the plan for implementing the evaluations and revising the instruction.

Phase 1- Self-Evaluation

During this phase the GMU team will focus on obvious errors in the instruction. For example, spelling and grammatical errors.

Date: April 2006

Participants

- The GMU Team members

Data Gathering

- Method - Record changes made to instruction for intermediate and final evaluation reports
- Tools – record sheet

Revisions

- The GMU team will decide on all revisions to be incorporated into the prototype prior to Expert Review and One to One evaluations and track any revision suggestions that are deemed appropriate to address after additional feedback is received.

Phase 2 – Expert Review

The focus of an expert review is on the intrinsic merits of the instruction. During this phase the GMU team will engage subject matter, teaching, web design, and instructional design experts to determine errors related to content, design, and technical quality.

Date: First Iteration, April 2006. Specific dates to be scheduled with experts. (The GMU team recommends completion of an additional iteration of SME Review scheduled prior to small group and field test evaluation to assess content completeness and accuracy of the remaining biographies and trivia game)

Participants

- GMU Team
- Experts
 - **Subject Matter Experts/Teaching Experts.** Granville Academy President and Instructors will provide both subject matter expertise and teaching expertise. Expert reviews by these individuals will be designed to capture information on content accuracy, importance and currency as well as teaching information such as learner appeal, matching to learner level, and fit to curriculum. These experts may also be able to provide testing expertise regarding the objectives and practice provided as well as implementation feedback.
 - **Instructional Design/ Web Design** experts. GMU team classmates will provide both web design and instructional design expertise. Expert reviews by these individuals will be designed to capture information regarding the clarity and effectiveness of the objectives, match of instruction to need, and the quality of instructional strategies. These experts can also provide feedback regarding the technical quality of the instruction, appropriateness of the media, ease of use and potential problems of use.

Data Gathering

- **Method** – Face to face interview is the preferred method. Design Team members will sit with the Expert and ask prepared questions, recording the expert's response and their own comments. Subject Matter Expert reviews may need to be handled via an email or mailed questionnaire. For those reviews handled via email/mail, a follow up phone call will be scheduled to clarify feedback.
- **Tools** – Questionnaire with prepared questions and space to record expert responses/ evaluator comments. The questionnaire will be tailored to the type of expert feedback desired, blending broad and specific questions. Questions types for each questionnaire will include questions for problem identification, revision suggestions, and usability. Questions to be used are included in Appendix A.

Implementing the review

- The GMU team will provide each expert with an overview of the goals of the project, the goals of the review, the process that will be used, how long it will last, and what is expected of them. The GMU team will explain the current stage of the instruction and what aspects should be ignored/focused on.
- During face-to-face reviews the GMU team will actively encourage feedback and record the experts comments as well as their own. Each review will close with closing questions: (mailed reviews will incorporate these questions into the follow up)
 1. What are the greatest strengths and weaknesses?
 2. What do you think of the overall design?
 3. If you could change only one thing what would it be?

Revisions

- The GMU team will compile the expert feedback to all questions as well as additional comments into a table that facilitates comparison of feedback across reviewers. The GMU team will determine which revisions should be made at once, and which should be tracked for possible revision in the future after additional feedback has been received. Where expert review feedback varies widely, the GMU team will apply the second opinion principle to adjudicate the revision decisions.

Phase 3- One-to-One

The focus of the one-to-one evaluations will be to gather information about the instruction's intrinsic merits from the learner's point of view. During this phase members of the GMU team will engage students in one-to-one interviews to evaluate the instruction for clarity, appeal, willingness to use, and obvious errors.

Date: April 5, 2006

(The one to one evaluations will occur in parallel to Expert Review to accommodate schedule. The GMU team recommends additional One to One evaluations to be completed on the trivia game once it has been developed to a prototype stage.)

Participants

- GMU Team
- Learners
 - Students of Grandville Academy – These learners represent the actual target audience of the instruction. If possible, learners will be selected to include an 8th grader, 10th grader, and 12th grader enrolled in the Granville Academy program. Ideally at least one of

- these learners will have participated in Granville for at least 2 years and at least one will have participated for less than one year
- Students of Sidwell Friends School – These learners represent students of a similar age and grade level to the target audience. If possible, three learners will be selected from the 9th and 10th grade representing low, medium, and high learning ability.

Data Gathering

- Method – Face to face interview. Students will meet with a member of the GMU team during a session of Granville Academy of Northern Virginia. These meetings will be one-to-one with the purpose of eliciting feedback about content, usability, and appeal of the prototype. The learner will interact with the prototype to include reviewing the content and completing the practice activities for one of the biographies.
- Tools – Questionnaire with prepared questions and space to record student responses as well as general student comments and designer's observations. Questions to be posed to the students during the meetings are included in Appendix A.

Implementing the evaluations

- The GMU team will set up the environment and provide each learner with an overview of the goals of the review, the process that will be used, and what is expected of them. The GMU team will explain the current stage of the instruction and encourage the students to find problems.
- During evaluations a GMU team member will actively encourage feedback and record the learner's answers to the prepared questions, comments about the experience, and their own comments.

Revisions

- The GMU team will compile the feedback to all questions as well as additional comments to determine if any revisions should/can be made prior to additional one-to-one interviews. Feedback from all one-to-one evaluations will be compiled into a table that facilitates comparison of feedback across evaluators. The GMU team will determine which revisions should be made at once, and which should be tracked for possible revision in the future after additional feedback has been received.

Phase 4- Small Group

During this phase members of the GMU team will meet with small groups of students. The purpose of the small group meetings is to evaluate instruction for effectiveness, appeal, and implementability. Students will assess clarity, graphic quality, ease of use, and willingness to use. Performance on the trivia hunt and quiz will be measured to evaluate learning effectiveness.

Date: TBD (The small group evaluation will occur outside the scope of the current project).

Participants

- GMU Team
- Students of Granville Academy of Northern Virginia (should not be the same students that participated in the one-to-one evaluation).
- Representative from Granville Academy acting as the facilitator for the instruction (since it is self-paced, an instructor is not needed to deliver the instruction).

Data Gathering

- Method – Face to face session. For small group evaluations, the evaluation environment should simulate to the extent possible the authentic environment in which the instruction will be used. Because the instruction is self-paced and intended to be used from home, the set up of the environment is somewhat flexible.
- Tools –
 - Data Recording sheet with prepared questions regarding what the designer wants to observe/learn during the small group evaluation and space to write observations/comments. Specific questions will be dependent on the outcome of one-to-one and expert reviews.
 - Debriefing questionnaire with prepared questions to gather information from the group at the close of the evaluation.
 - Completed treasure hunt and quiz

Implementing the evaluations

- The GMU team will set up the environment and provide the learners and facilitator with an overview of the goals of the evaluation, the process that will be used, and what is expected of them. The GMU team will explain the current stage of the instruction and encourage the students to find problems.
- During evaluations the GMU team will record observations but not actively interact with the group unless a problem occurs that they cannot resolve on their own. After the learners have completed their evaluation, the GMU team will debrief them as a group

Revisions

- The GMU team will compile the feedback and analyze the performance data from the practice activities to look for patterns of performance. Based on this analysis, the GMU team will determine what revisions are needed prior to the field test.

Phase 5- Field Test

During this phase the GMU team will test the website in the environment in which it will be used. GMU team members will simulate the environment or visit students in their own homes. The purpose of this phase is to evaluate user acceptance and implementability. Performance on the trivia hunt and quiz will be measured to evaluate learning effectiveness.

Date: TBD (The Field Test will occur outside the scope of the current project).

Participants

- GMU Team
- Students
- Granville Academy president or designees who would be acting as the instructor/facilitator in implementing the program and responding to students.

Data Gathering

- Method – Observation and face to face group debriefing
- Tools –
 - Questionnaire with prepared questions and space to record student responses
 - Observation log
 - Completed treasure hunt and quiz

Implementing the evaluations

- The GMU team will observe use of the instruction in its nearly final stages in the actual environment in which it will be used.
- During evaluations the GMU team will record observations but not interact with the students. After the learners have completed their evaluation, the GMU team will debrief them as a group

Revisions

- The GMU team will compile the feedback and analyze the performance data from the practice activities to look for patterns of performance. Based on this analysis, the GMU team will determine if revisions should be made.

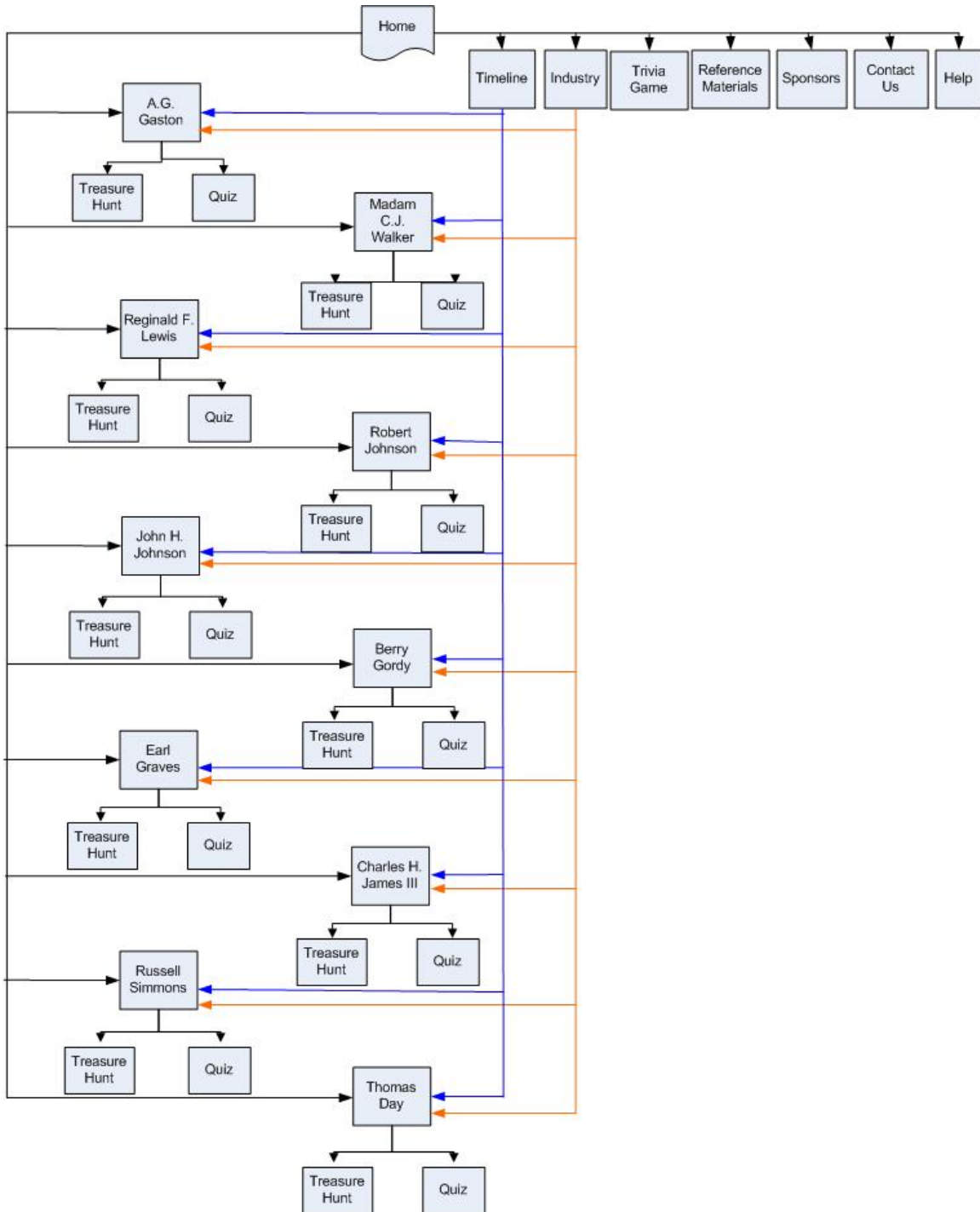
Evaluation reports

- Intermediate reports – these reports will include summaries of the results of each evaluation phase and the revisions that are recommended based on the evaluation

- Final evaluation report – this report will evaluate the entire formative evaluation. It will summarize the process and detail changes that were made based on the evaluation. It will also include recommendations changes that could not be made but should be included in future iterations of the instruction.

Flowchart & Storyboards

Flowchart



Storyboards

Home page

Logo & Banner

Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#) |

Sub:Navigation
to Individual
Biography's

Description of site
Motivational Introduction

Sponsor info

Contact Us
Copyright

Logo & Banner

Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Sub Pages**

Sub:Navigation

The person highlighted will also have links to the Treasure Hunt and Game on the left navigation under their name.

Photo (if available)

Name:

Date and place of Birth:

Education:

Died:

Quote:

Biography: Paragraph form, include the following:

- Early Job(s)/how they got started
- Primary Business(es)/Industry
- Organizations/Affiliations
- Key Achievement

Treasure Hunt

Description and instructions

Quiz

Description and instructions

Reference Materials

Contact Us
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Logo & Banner

Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Treasure Hunt**

Sub:Navigation

Treasure Hunt Game:

Question 1 about this bio

Link to reference where this answer can be found

Question 2 about this bio

Link to reference where this answer can be found

Big Question: place to answer big question

Option to ask a question about this person to add to the game

Contact Us
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Logo & Banner

Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Quiz**

Provide same questions and answers from Treasure Hunt in a quiz format so that the user can practice without coaching from reference materials. Feedback will be provided immediately if they get the question right or wrong.

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Logo & Banner

Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Timeline**

Sub:Navigation

Timeline with names linked to each bio.

(What year should be referenced on timeline?)

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Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Industry**

Sub:Navigation

Industry Headings with names linked to each bio.

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Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Trivia Game**

Sub:Navigation

A trivia game asking same questions already provided in the Treasure Hunt and Quiz that will contain all people and cross reference the question and answers. Feedback is provided immediately if the question is right or wrong.

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Page Title: **Reference Materials**

Sub:Navigation

Links to reference materials categorized by persons name.

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Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Sponsors**

Sub:Navigation

Sponsors – Logos and Links

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Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Contact Us**

Sub:Navigation

Contact Information

Submit Big Question answer via a form

Submit additional questions via a form

Logo & Banner

Navigation: | [Timeline](#) | [Industry](#) | [Trivia Game](#) | [Reference Materials](#) | [Sponsors](#) | [Contact Us](#) | [Help](#)

Page Title: **Help**

Sub:Navigation

Help Directions

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Appendix A:

Data Gathering Tools

Expert Review Survey Questions

Questions for SME/Teaching Experts:

1. Is the content accurate and current?
2. Is there key content that you feel is missing?
3. Would you have selected this individual to teach the history of black business?
4. Who else do you think is important to this topic?
5. Do you think the students will be motivated to use it?
6. Does the content presentation seem well matched to the learner level?
7. What might you change to make this instruction fit better with the curriculum?
8. How might you change the practice activities provided in order to better support the learning objectives?
9. How would you see yourself implementing this instruction?

Questions for Instructional Design/ Web Design Experts

1. How would you clarify the instructions?
2. Are the objectives supported by the instructional strategies?
3. Does the instruction match the expressed need?
4. How might you modify the organization of the content to make it more effective?
5. How would you improve the feedback provided on practice activities?
6. What e-learning design principles does the site fail to adhere to?
7. Is the navigation clear and intuitive?
8. What issues do you think users might have interacting with the site?
9. What changes would you make to the media used?
10. What would you change about the site's design? .

One-to-one questions/record sheet

One-to One Interviews with Students GMU Team Granville Academy of Northern Virginia April 5, 2006	Student Grade Level:
1. Do you think the appearance of the webpage is appealing? Why?	
2. Do you think the design makes information easy to locate?	
3. Do you find the information easy to follow? Is the language confusing in any way?	
4. Do you think that it is easy to “know where you are” within the site?	
5. Do you recognize all, some, or none of the individuals discussed in the website? Who?	
6. Is there anyone you think should be mentioned that is not?	
7. What are some of your immediate reactions to the website?	

8. Would you use this website for anything outside of your participation in Granville Academy?

9. What features do you think could make the website more appealing?

10. What features do you think could make the website better to navigate?

Additional Notes/observations:

Learner comments:

References

Tessmer, M. (1993) Planning and conducting formative evaluations: Improving the quality of education and training. Abingdon, Oxon: Routledge