Using Learning Styles to Differentiate: A Usability Study of a Teacher Resource Website

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What is your favorite subject?

- Math
- Art
- Science
- Writing
- P.E.
- Social Studies
How do you prefer to learn?

Seeing

Hearing

Doing
Each person has a learning style as “individual as a signature.”

Dunn, Beaudry and Klavas, 2002
Problem

Differentiate instruction.

Time is a commodity.

Carolan & Guinn, 2007
Purpose

Determine the usability of a teacher resource website on learning styles and differentiation for K-12 educators.
Website Design
http://jls4486.wixsite.com/outsidethebox

Aesthetics  ↔  Usability

Glore and David, 2012
Target Audience

K-12 teachers and home educators.
Content

- Differentiation
- Learning Styles
- Assessments
- Strategies
Self-evident

Obvious

Self-explanatory

Krug, 2006

“Every student can learn, just not on the same day or in the same way.” George Evans
Learning Styles

Have you ever wondered why you are good at certain subjects and not so good at others? Or, have you ever wondered why your student or child likes certain subjects or learning environments and not others? This is because everyone learns differently.

While there are several models, there are generally three main modalities of learning. They are visual, auditory and kinesthetic.
Learning Styles Assessment

Your preferred learning style is the way in which you learn best. Three learning styles that are often identified in students are visual, auditory and kinesthetic.

Administer this 5-minute assessment to identify your student's preferred learning style and receive study tips for each.
Learning Style Assessment

Choose all that describe you. The list with the greatest number of checks is how you like to learn best.

Visual Learning Style

Choose all that describe you.

☐ I remember best by writing things down or drawing pictures.
☐ I ask for directions to be repeated.
☐ I like to read about something rather than hear about it.
☐ I am a good speller.
☐ I like to learn with posters, videos, and pictures.
☐ I am good at reading maps and graphs.
☐ When someone is talking, I create pictures in my mind about what they are saying.
☐ After school, I like to read books.
☐ I like it when my teacher uses lots of pictures when teaching.
☐ I can remember something if I picture it in my head.

How Do I Learn?

Place a check (✓) in all the blanks that describe you. The list with the greatest number of checks is how you like to learn best.

Visual Learning Style

1. I remember best by writing things down or drawing pictures.
2. I ask for directions to be repeated.
3. I like to read about something rather than hear about it.
4. I am a good speller.
5. I like to learn with posters, videos, and pictures.
6. I am good at reading maps and graphs.
Have students:
- Answer questions orally.
- Give oral reports.
- Repeat facts aloud with their eyes closed.
- Use repetition to memorize.
- Recite information aloud when they're studying (i.e., facts, spelling words).
- Use tape recorders to record and playback lessons.
- Participate in small and large group discussions before working independently.
- Study in groups.
- Use video and audio tapes.
- Use books on tape.
- Use melodies, rhythms, and beats to reinforce information.
Welcome to OUTSIDEtheBOX!

This site was created as a result of research done on differentiating instruction. Differentiation is the buzz word in education. Educators are encouraged to consider students as individual learners and teach to each child accordingly. This site is intended to be a useful tool where educators can find information and resources to reach every student outside of the traditional box. Feel free to contact us with any inquiries.
Usability Testing

NO!
That's not how you're supposed to use it!
Why usability testing?

Finding usability problems isn't worth much unless you actually end up fixing them.

Krug, n.d.
Methods
Instruments

Consent to Participate in Research Project

Pre-Study Survey

Aloha! Thank you for your interest in this research project. As part of the University of Hawaii's M.Ed program in Learning Design and Technology a website has been created as a teacher resource for differentiation. The content of this website is focused on learning styles and appropriate teaching strategies to facilitate differentiation. Please fill out a short survey to ensure you meet the qualifying requirements to participate in the study.

In this survey, participants will complete questions about the technologies they use, internet access and their teaching experiences. Your information will help improve the website. The anticipated duration of this survey is less than 10 minutes.

Your participation in this study is completely voluntary. And, you may withdraw from the survey at any time.

Thank you very much for your time and support.

* Required

Are you or have you been a K-12 or home educator? *

- Yes
- No
Preliminary Questions:
1. Do you know anything about various learning styles, and if so, what knowledge do you have?
2. What kinds of information might you expect to see on a website about learning styles and differentiation?
3. Have you ever built or helped edit a website? If so, what program or software did you use?

Tasks:
1. You are beginning the school year and would like to first find out your student's preferred learning styles. Where would you locate that information?
2. You are planning a lesson and would like to incorporate learning strategies that match particular learning styles. Where would you find that information?
3. You would like to find out more information about learning styles. Where can you go to learn more?

Follow Up Questions:
1. On a scale of 1 to 5, with 1 representing very difficult and 5 representing very easy, how would you rate your experience during today's testing? Why?
2. After participating in this study, would you recommend this website to any of your friends? Why?
<table>
<thead>
<tr>
<th>Type of issue</th>
<th>Description</th>
<th>Location</th>
<th>URL Link</th>
<th>Possible solution</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Redundant menu and buttons</td>
<td>Have both buttons &amp; menus that go to the same pages on home page.</td>
<td>Homepage</td>
<td><a href="http://lis4486.wixsite.com/outsidethebox">http://lis4486.wixsite.com/outsidethebox</a></td>
<td>Delete buttons on page to make only one menu.</td>
<td>Done</td>
</tr>
<tr>
<td>Include search bar</td>
<td>Include search bar in the menu area</td>
<td>All pages</td>
<td><a href="http://lis4486.wixsite.com/outsidethebox/differentiation">http://lis4486.wixsite.com/outsidethebox/differentiation</a></td>
<td>Done</td>
<td></td>
</tr>
<tr>
<td>Where to find out more information on learning styles</td>
<td>Users chose either learning styles page or the about page</td>
<td></td>
<td></td>
<td>Make more clear.</td>
<td></td>
</tr>
<tr>
<td>Serious issue</td>
<td>User cannot complete task or serious suggestion/concern.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concerning issue</td>
<td>User completed the task with issues or a concerning suggestion.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minor issue</td>
<td>User completed task easily with little frustration or had a minor suggestion.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Post-Study Survey

Design Layout

The home page layout is easy to understand.*

1 2 3 4 5

Strongly disagree

Strongly agree

The website is visually appealing.*

1 2 3 4 5

Strongly disagree

Strongly agree
Demographics

<table>
<thead>
<tr>
<th>Demographic Characteristic</th>
<th>Number of Participants</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>31-40</td>
<td>4</td>
<td>44%</td>
</tr>
<tr>
<td>41-50</td>
<td>5</td>
<td>56%</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>9</td>
<td>100%</td>
</tr>
<tr>
<td>Level of Education</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Some College</td>
<td>1</td>
<td>11%</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>3</td>
<td>33%</td>
</tr>
<tr>
<td>Master's Degree</td>
<td>5</td>
<td>56%</td>
</tr>
</tbody>
</table>

- **Age**
  - 31-40: 4 (44%)
  - 41-50: 5 (56%)

- **Gender**
  - Female: 9 (100%)

- **Level of Education**
  - Some College: 1 (11%)
  - Bachelor's Degree: 3 (33%)
  - Master's Degree: 5 (56%)
Technology Use

Please rate your level of computer skill? (9 responses)

- 1 (0%)
- 2 (0%)
- 3 (22.2%)
- 4 (33.3%)
- 5 (44.4%)

What do you do on the internet? Check all that apply. (9 responses)

- Work: 8 (88.9%)
- Email: 9 (100%)
- Social media: 8 (88.9%)
- Shopping: 8 (88.9%)
- News: 9 (100%)
- Entertainment: 6 (66.7%)
- Research: 4 (44.4%)
- Other: 1 (11.1%)
Data

Task Success
Design Layout
User Satisfaction
- 5 point scale
- Layout
- Navigation
- Ease of Use
- Effectiveness
Task Completion
Determine students’ preferred learning style.

![Usability Task 1](chart.png)
Task Completion
Locate learning strategies that match particular learning styles.

Round 1
Participant A
Participant B
Participant C

Round 2
Participant D
Participant E
Participant F

Round 1
Participant G
Participant H
Participant I

Usability Task 2

0 1 2 3
Unable to perform task
Performed task with some challenges
Successfully performed task

Task 2
Task Completion
Locate more information on learning styles.
Design Layout

The home page layout is easy to understand. (9 responses)

The images are interesting. (9 responses)

The website is visually appealing. (9 responses)

The organization of the site is logical and easy to follow. (9 responses)

0 = Strongly Disagree  5 = Strongly Agree
Revisions

Initial design with drop-down menu.

Final page design. No drop-down menu.
Revisions

Original redundant menu on homepage.

Final change: one menu option and addition of the search bar.
Revisions

First Iteration:
Images not clickable.
User had to scroll down for information.
Revisions

Final Iteration: Clickable images that lead to more specific information about each learning style.
Findings

- Participants very interested in topic
- Feedback gained was invaluable
- Usability study equally invaluable

Finding usability problems isn't worth much unless you actually end up *fixing* them.

Krug, 2010
Positive Feedback

Participant Comments:

Very easy to navigate.
Great images.
Very clean.
No ads, clear and concise.
Really like the light bulbs.
I will definitely use this!
References


