

Accessibility and Usability

IS&T

Customer Support

Accessibility & Usability Group

Mary Ziegler, IT Manager

Accessibility and Usability Areas and Staff

Mary Ziegler, Manager

ATIC – Assistive Technology Information Center, Bldg 7-143

Kathy Cahill, Mary Ziegler

Accessibility – Bldg N42-240* and 7-143

Stephani Roberts, Rich Caloggero

Usability – Bldg N42-240*, including Usability Lab in Bldg N42-237

Katherine Wahl, Chris LaRoche

*Moving to E19 in June

Accessibility and Usability

Why Engage us?

Accessibility – ensure all users can access Web sites and applications

- Supports MIT mission to promote a diverse and inclusive community
- Avoids expensive complaints or workarounds

Usability – ensure usable Web sites and applications

- Assist with research and evaluation throughout any and/or all parts of the project life cycle
- Makes IT easier, increases productivity and user satisfaction

Accessibility and Usability

How We Engage

- **Consultant Role**
 - Strive to understand the full scope of the project
 - Come into project at different points and times
 - Coordinate accessibility and usability needs
 - Make recommendations to support user goals
- **Our services are free**
- **Work with the entire MIT community**
- **Prioritize community-wide and IS&T projects**

Accessibility and Usability

When to Engage Us

- Early engagement saves time and effort – and allows us to schedule and plan better
- We work with you to select appropriate methods and services
- We strive to schedule our services within your timeline

ATIC (Assistive Technology) Services

ATIC helps MIT students and staff with disabilities or temporary injuries select and use assistive technologies such as:

- Screen reading (translates visuals into audio output)
- Speech recognition (speech to text)



- Keyboards and Pointing Devices
- Scanning and Reading (text to speech)
- Magnification Software



Accessibility Services

Research

Analyze code and software solutions for the most accessible outcome given a particular scenario.

Design Reviews

Evaluate visual surface elements: color choices, contrast, font sizes, text handling, consistency and clarity in navigation and labels.

Code Reviews

Evaluate and test code and structure with

- tools, assistive technology: screen readers, voice recognition
- other platforms: mobile, tablets, etc.

Accessibility Services



Information Services & Technology

Part I - The Visual Review

2. Low contrast text

The yellow text on white in the navigation is low contrast and fails all three contrast tests. Consider using #8F7303, shown below right, it passes all tests.

Failed tests for contrast:

Colour/Brightness difference: 379 / 90 Show details

✗

Contrast ratio: 2.1:1 Show details

Text	Large text
✗ <input type="text" value="Fail (AA)"/>	✗ <input type="text" value="Fail (AA)"/>
✗ <input type="text" value="Fail (AAA)"/>	✗ <input type="text" value="Fail (AAA)"/>

Normal
The contrast ratio is: 2.1:1
Protanopia
The contrast ratio is: 1.9:1
Deutanopia
The contrast ratio is: 2.0:1
Tritanopia
The contrast ratio is: 2.2:1
Color blindness
The contrast ratio is: 2.4:1

Download the Paciello Group's contrast analysis tool to text

Raising Teens

- Ten Tasks of Adolescent Development
- Five Basics of Parenting Adolescents
- Abuse of Teens: First Do No Harm
- 2** Parenting Adolescents in Developing Countries
- About the Raising Teens Project

Search

PDF DOWNLOADS CONTACT

An extraordinary body of research exists on the powerful ways in which parents and families make a difference in the lives of teens. Yet, little of this knowledge has been reaching the media, policy makers, and practitioners—let alone parents themselves. The Raising Teens Project aims to make the research more accessible and useful to those who work with and on behalf of parents, adolescents, and families—as well as to parents' themselves.

The report reveals a surprising degree of consensus among experts. Based on an analysis of more than 300 research studies, the Raising Teens Project distills major findings into Ten Tasks of Adolescent Development and Five Basics of Parenting Adolescents, including key messages and strategies for parents. Information is also provided on the special issue of Abuse of Teens.

Readers may also be interested in Parenting Adolescents in Developing Countries, a follow-up report drafted by Raising Teens Project Director Rae Simpson, PhD, for the World Health Organization.

In addition, Dr. Simpson's Young Adult Development Project extends her research analysis to the dramatic developmental changes taking place between ages 18 and 25.

For more information, visit About the Raising Teens Project or download the full report in English or Spanish.

"The term "parents" is defined broadly to encompass all those adults with responsibility for raising children, whatever their biological relationship.

Most things about their world are changing. Don't let your love be one of them.
[Read More >](#)

Passing value: #8F7303

Contrast ratio: 4.5:1 Show details

Text	Large text
✓ <input type="text" value="Pass (AA)"/>	✓ <input type="text" value="Pass (AA)"/>

Accessibility Services



Information Services & Technology

4. Color combinations difficult for color blind users

The adjacent colors are fine for users without any form of color blindness but for the 5%+ that have it these graphs are less meaningful. The simulation shown here "Deuteranopia" illustrates how similar some of the color bars appear to a person with traditional red/green color blindness. The color key you use to explain these color differences will not be helpful for this group of users.

We recommend Color Brewer, it's used for maps but it can help you choose colors that do not appear the same to a color blind user. Try this page to find colors that work well together (you'll need the Flash plugin):

<http://www.personal.psu.edu/cab38/ColorBrewer/ColorBrewer.html>

Color examples: standard vs red green color blind

On the left is a sample of the 5 diverging colors that should not appear the same for red green color blind users. On the right is what these same colors look like in a red green color blind simulation. (Created by ColorBrewer.)

number of classes: 5
Step 1

Step 2 legend type: sequential, diverging, qualitative
learn more

Step 3 mini legends
learn more

number of classes: 5
Step 1

Step 2 legend type: sequential, diverging, qualitative
learn more

Step 3 mini legends
learn more

Part I - The Visual Review



Accessibility Services

Part 2 – The Screen reader Review

14. Homepage animation too fast

<http://www.pooreconomics.com/>

I'd suggest either:

1. lowering refresh rate to between ten and fifteen seconds
2. provide a way to turn it off

In fact, maybe a link / button available to screen reader users only which says "Animation on this page may slow down your screen reader; click here to turn it off", or some such.

Hide the control from view with CSS:

```
.screenReaderOnly {  
position: absolute;  
overflow: hidden;  
clip: rect(1px 1px 1px 1px);  
clip: rect(1px, 1px, 1px, 1px);  
}
```

Another approach might be to move the slideshow container to the end of the DOM. The issue for me is that I can stumble upon the slideshow content, and read it, but not know it is automatically updating. Next time I read the page in the same spot it has changed, which might cause me to assume I'm not where I thought I was on the page.

It might also be useful to use ARIA liveregion markup to cause the screen reader to speak the slideshow as it changes, but this may also prove extremely annoying, and should be accompanied by a button to disable the live region.

The screenshot shows the homepage of the website 'POOR ECONOMICS: A RADICAL RE THINKING OF THE WAY TO FIGHT GLOBAL POVERTY' by Abhijit V. Banerjee and Esther Duflo. The page features a navigation menu with 'CHAPTERS', 'DATA', 'RESEARCH', 'ABOUT THE BOOK', and 'WHAT CAN YOU DO'. A search bar is located on the right. The main content area displays a slideshow of three men from Kabul, with a yellow box highlighting the number '14' and the text 'Chapter 7: The Men from Kabul' and 'Topic: Microfinance'. Below the slideshow are three interactive elements: 'Explore Data by Map', 'Explore Data by Graphs', and 'Buy the Book'. A 'News' section on the right lists events from 06/02/2011 and 05/10/2011. The footer contains copyright information and contact links.

Accessibility Services



Part 2 – The Screen reader Review

18. Data: add headings

- * Use th cells for table headers

Introduce the page content with a heading. Use CSS to hide from view if it should not show on-screen:

- h2: Data for chapter 2 or some such...

It should be placed just before the controls to set the view to graph / table.

Also add these headings:

- h3: Data Sources:
- h3: Methodology:
- h2: CHAPTER 2

19. Data: Reorganize the DOM

When one clicks "data" or "studies" links from a chapter's page, the DOM is organized as follows:

- h1 (book title)
- main nav list (chapters, data, research, etc)
- searchbox and search button
- main content
- chapter title
- list of subsections for that chapter (data, studies, teaching and resources)

I suggest reordering the DOM so that the chapter title and list of sections always follows the search area, and always begins with a heading:

```
<h2> chapter 2</h2>
<ul>
<li>Data</li>
<li>Teaching and Resources</li>
</ul>
```

follow this with a heading wrapping the currently showing section:

The screenshot shows a web application interface. At the top, there are navigation tabs: CHAPTERS, DATA, RESEARCH, ABOUT THE BOOK, and WHAT CAN YOU DO. Below these are options for GRAPH VIEW and TABLE VIEW, and a DOWNLOAD DATA button. The main content area displays a table titled "How much are the poor spending on food?". The table has columns for Rural and Urban spending percentages for various countries. A yellow box labeled '18' highlights the table headers. To the right, there is a sidebar with a 'DATA' link highlighted by a yellow box labeled '19'. Below the sidebar are links for STUDIES, TEACHING AND RESOURCES, and BUY THE BOOK.

	Rural	Urban
Bangladesh	38.13%	
Brazil	55.70%	51.03%
Ecuador	34.13%	41.43%
Ghana	58.20%	52.23%
Guatemala	29.35%	
India Hyderabad		41.38%
India Udaipur	48.07%	
Indonesia	58.95%	54.95%
Ivory Coast	64.95%	55.05%
Mexico	51.55%	45.95%
Morocco	55.68%	
Nicaragua	55.10%	53.48%
Pakistan	62.70%	49.10%
Panama	58.83%	45.45%
Papua New Guinea	59.90%	51.27%
Peru	67.53%	50.13%
South Africa	59.58%	51.55%
Tanzania		

Usability Services

Usability Basics

- Concept existed forever – how users can most easily learn and use a product to achieve their goals in the most quick and efficient way
- The field has grown tremendously the last twenty years
- Field is continuing to evolve, especially with new methods and within many professions
- Our group is known for usability testing, but we do much more!

Research & Evaluation: Our Core Strengths

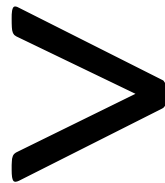
Usability Services

Research: Understanding User Needs & Goals

Early research saves time and resources as issues are uncovered earlier and fewer issues to fix later

Common Methods:

- User Interviews
- User Surveys
- User Observations
- Competitive Analysis
- Focus Groups



Helps Answer these Questions:

- Assists creating business requirements and functional specifications
- Helps understand user's real workflow, workarounds, and 'pain points'
- Helps with creation of user profiles, personas, and prototypes

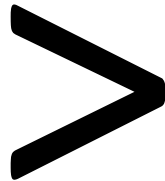
Usability Services

Evaluation: Reviewing & Analyzing Products

Reviewing and testing projects help uncover user issues with project

Common Methods:

- Usability Testing
- Reviews
(Expert & Heuristic)

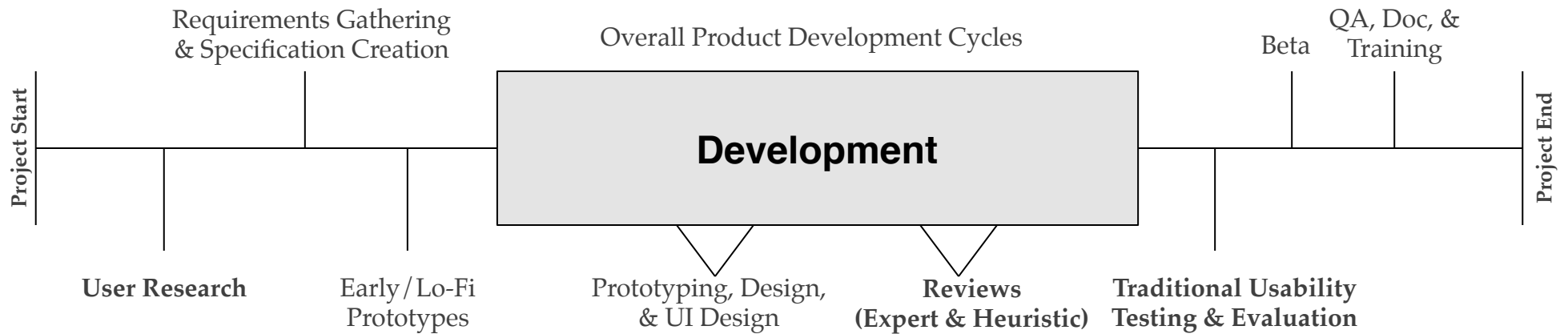


Helps Answer these Questions:

- Uncover issues found by real users
- Understand user 'pain points'
- Earlier issues are found – quicker and cheaper to fix in the process
- Reviews uncover issues that might not be found until testing or release
- Improves the product overall

Accessibility & Usability Team

Ideal Development Timeline

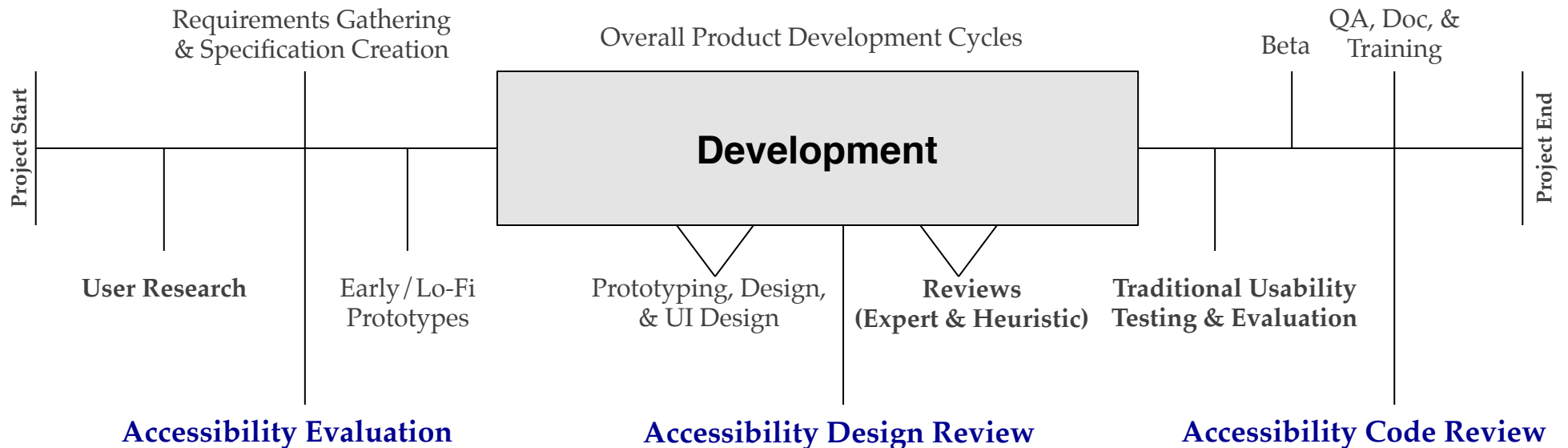


Ideal Usability Timeline

These methods can be used at different points in the development process, but this is the most traditional (and efficient) time to use this framework.

Accessibility & Usability Team

Ideal Development Timeline



Ideal Usability Timeline

These methods can be used at different points in the development process, but this is the most traditional (and efficient) time to use this framework.

Project Examples

Accessibility

Open CourseWare (OCW)

Poor Economics*

MIT 150

Blossoms*

Raising Teens*

Usability

Open Courseware (OCW)

Blossoms*

Star Bio-Chem

AARA*

Online Registration*

Accessibility and Usability

Contact us

Contact us for additional information/requests:

Accessibility — accessibility@mit.edu

Usability — usability@mit.edu

Accessibility and Usability

Questions?