Mobile Learning Basics + (Free) Mobile Learning Guide

Jason Haag and Marcus Birtwhistle

Agenda

- Basics of Mobile Learning
  - Why?
  - What?
- ADL mLearning Guide
  - What?
  - How?
- Resources
- Questions/Discussion

What We'll Cover

ADL

- Founded in 1997 to standardize and modernize delivery of training and education in the U.S. Department of Defense (DoD)

- Develop and implement learning technologies across the DoD and federal government

- Collaborate with government, industry, and academia to promote international specifications and standards for designing and delivering learning content

Agenda

Vision

- To be the source of information and support for DoD mobile learning initiatives.

Knowledge

- Track initiatives and share
- Remain current and provide weekly newsletter
- Deliver presentations
- Collect use cases

Deliverables

- Develop samples
- Identify tools
- Conduct workshops and webinars
- Write papers
- Facilitate working group

Research

- Collect literature and review
- Share best practices
- Support BAAs

What We'll Cover

What Are Your Responsibilities?

A. Manager

B. Instructional Designer

C. Developer

D. Subject Matter Expert

E. All of the above

F. Other (please add to Chat)

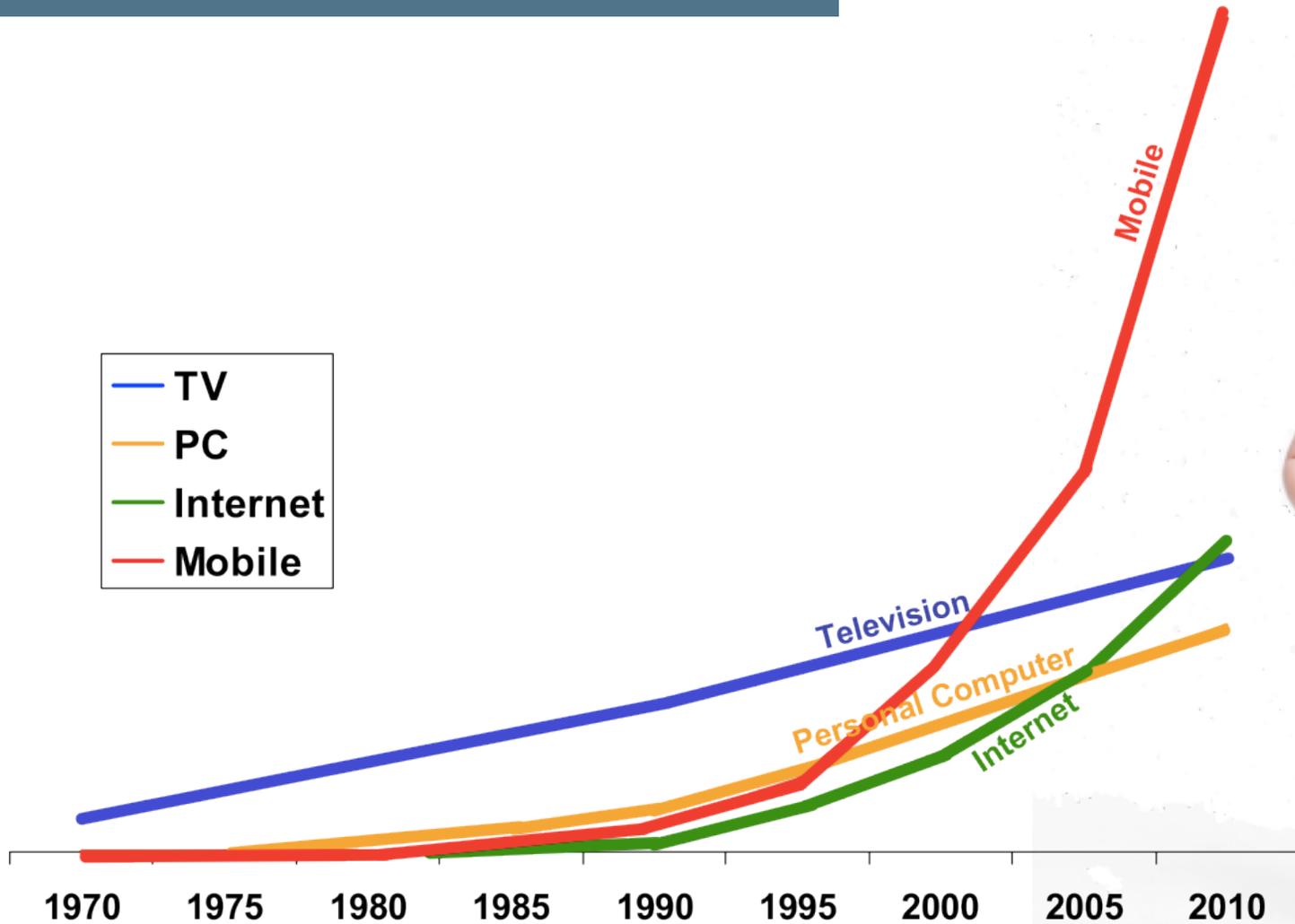Poll Question

How often do you use your device(s)

A. Daily

B. A few times per week

C. A few times per month

D. A few times per year

E. Never

Poll Question

Mobile Growth Rate

TV
PC
Internet
Mobile

Mobile

Television

Personal Computer

Internet

1970 1975 1980 1985 1990 1995 2000 2005 2010

What have you learned on your mobile device(s)?

A. Completed a course or used for performance support
B. Used a search engine
C. Geographical travel information
D. Never learned anything
E. Don't have a connected device

Poll Question

What is MOBILE learning?

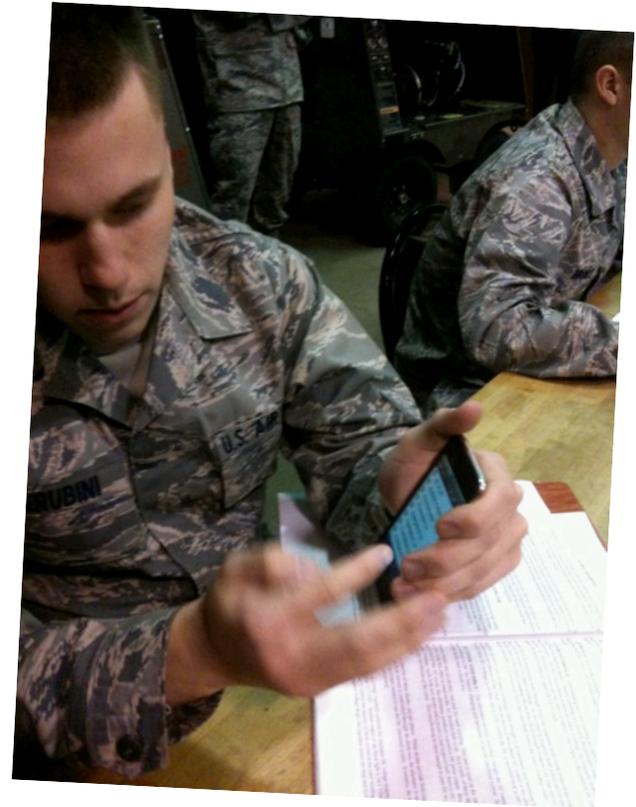The exploitation of ubiquitous handheld hardware, wireless networking and mobile telephony to **FACILITATE** support ENHANCE AND EXTEND THE REACH OF teaching and **LEARNING.**
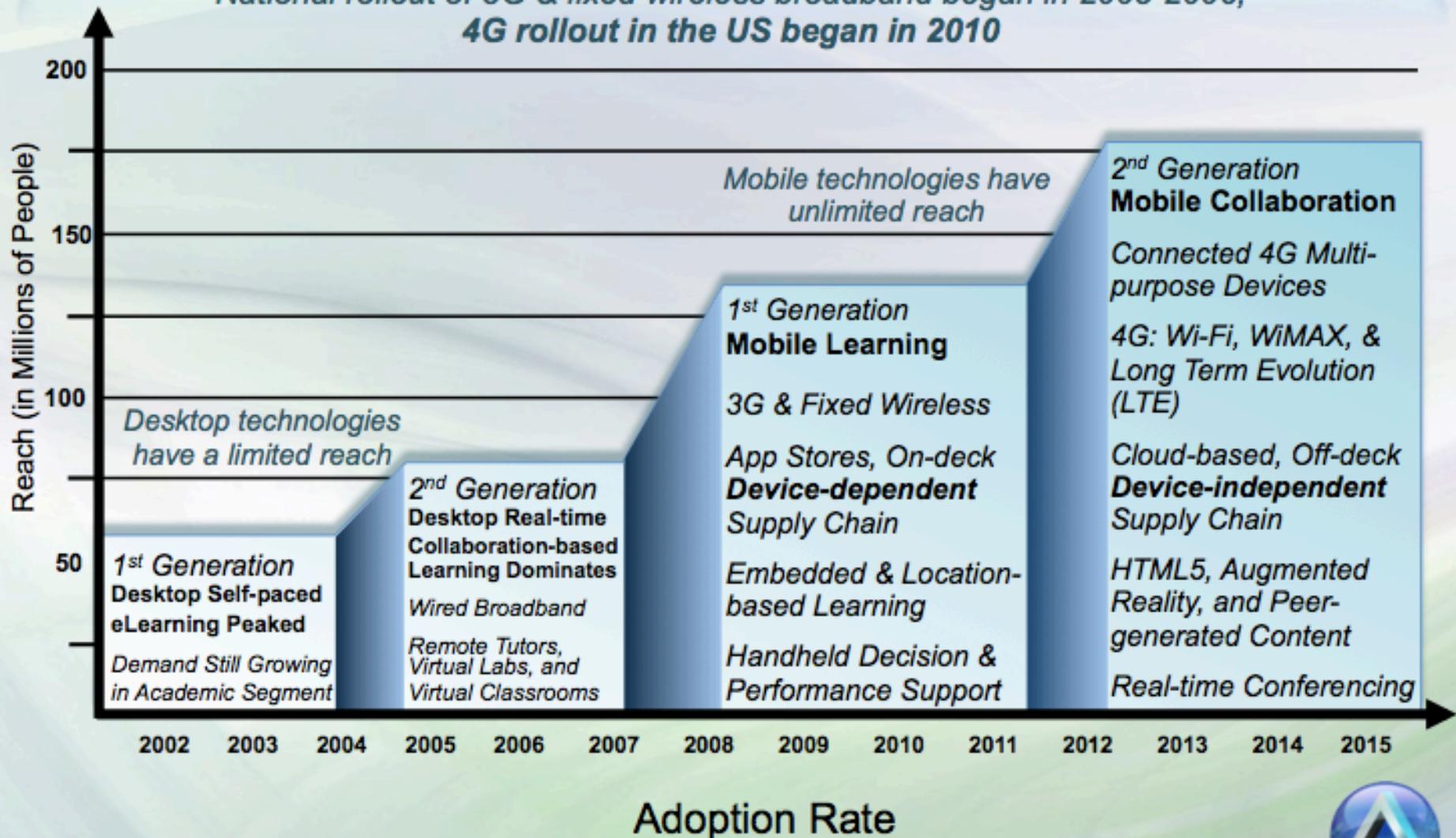
MOLENET (2007–2010)

ADL's Definition

ADL defines mobile learning as the use of handheld or wearable computing devices to provide access to learning content and information resources.

2015 US Mobile Learning Reach and Adoption Across All Eight Buyer Segments

National rollout of 3G & fixed wireless broadband began in 2005-2006,
4G rollout in the US began in 2010

Reach (in Millions of People)

200

150

100

50

Mobile technologies have unlimited reach

Desktop technologies have a limited reach

2nd Generation Mobile Collaboration

Connected 4G Multi-purpose Devices

4G: Wi-Fi, WiMAX, & Long Term Evolution (LTE)

Cloud-based, Off-deck **Device-independent** Supply Chain

HTML5, Augmented Reality, and Peer-generated Content

Real-time Conferencing

1st Generation Mobile Learning

3G & Fixed Wireless

App Stores, On-deck **Device-dependent** Supply Chain

Embedded & Location-based Learning

Handheld Decision & Performance Support

2nd Generation Desktop Real-time Collaboration-based Learning Dominates

Wired Broadband

Remote Tutors, Virtual Labs, and Virtual Classrooms

1st Generation Desktop Self-paced eLearning Peaked

Demand Still Growing in Academic Segment

2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

Adoption Rate

Five Moments of Learning Needs

- When learning for the first time
- When wanting to learn more
- When trying to remember
- When things change
- When something goes wrong

Dr. Conrad Gottfredson

When is mobile most appropriate?

A. When learning for the first time

B. When wanting to learn more

C. When trying to remember

D. When things change

E. When something goes wrong

Poll Question

Five Moments of Learning Needs

- When learning for the first time
- When wanting to learn more

} Learn

- When trying to remember
- When things change
- When something goes wrong

} Perform

Workplace GPS

- Metaphor (Masie)
- New place, info, feedback
- Use when needed
- Positive correction
- Intuit QuickBooks

Quoted

"You can't teach people everything they need to know. The best you can do is position them where they can find what they need to know when they need to know it."
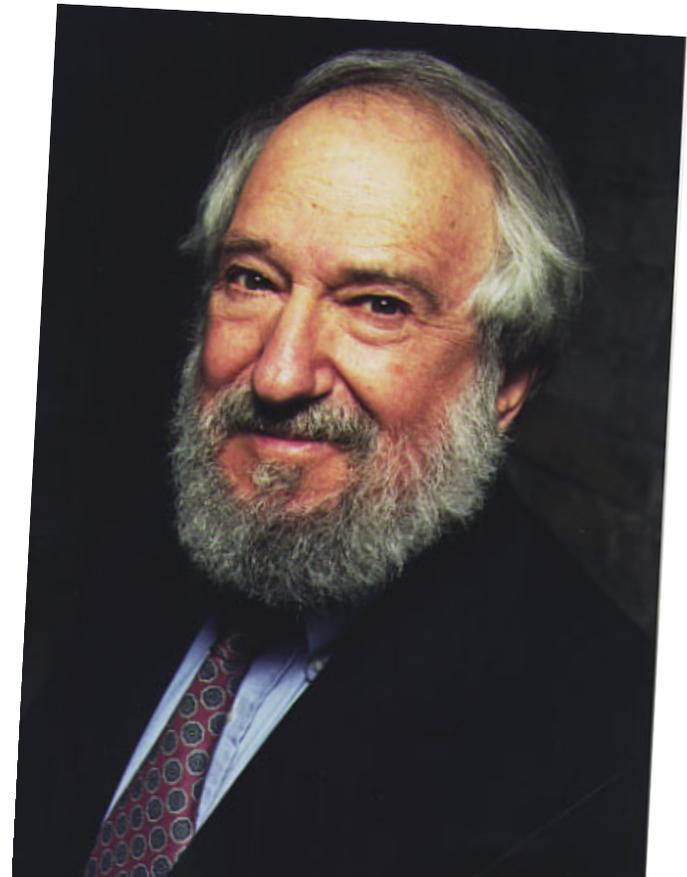
Seymour Papert, MIT

ADL 6 D's for Mobile Learning
## Planning questions for a successful mLearning program

ADL Mobile Learning

Define
- What is the problem/requirement?
- What do you want to accomplish?
- Who is the audience? (Conduct survey?)
- Do you have a working description including the vision, benefits and cost estimates?

Discover
- What technology do they have/need?
- What are their requirements?
- Is mobile appropriate?
- Is the culture ready?
- Have you researched mobile options?
- Who is in charge?
- Are all the stakeholders on board? (IT, legal, content owners...)
- What policies need to be changed or added?
- Are there sufficient resources?
- What is the timeline?
- Who will maintain the program after the initial project ends?

Design
- Is content available? If not, who will create?
- Is the content for formal or informal learning, or for performance support or job aid?
- How will you maintain and update content?
- What do you need to track?
- What will the user interface look like?
- What security measures are required?
- What is the smallest, most concise chunk of learning content?

Develop
- What internal mobile competencies does your organization have?
- Who is going to develop?
- Where is the content going to be hosted?
- What devices and platforms are you supporting?
- Do you have the tools you need?
- Do you have testing devices and debugging tools?
- Do you need offline access?

Deploy
- Who is going to support the users?
- How will you provide training on the devices or apps?
- Where is the data going to be stored?
- How will availability be marketed?

Determine Outcome
- How will you know if your program is successful?
- How will you assess learning?
- Who will evaluate program and learning?
- What measurements will you use?

ADL Mobile Learning Team, October 2011

ADL Mobile Learning Guide

http://mlearn.adlnet.gov

ADL mLearning Guide

- Problem
- Platforms
- Lessons Learned
- Next Steps

http://mlearn.adlnet.gov
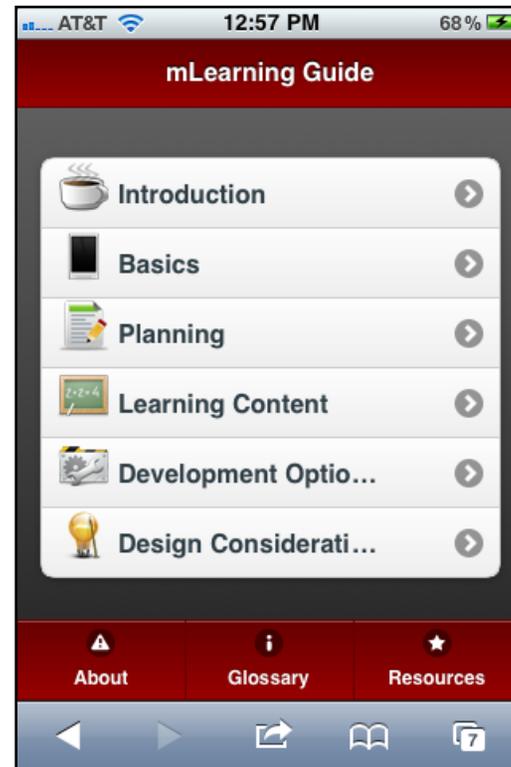
ADL Mobile Learning Guide

- Graphics editor (Fireworks)
- HTML editor (Dreamweaver CS 5.5)
  - jQuery Mobile Framework (for mobile content creation)
- PhoneGap Framework (open source - for native app packaging & deployment)
- Books
  - "Programming the Mobile Web", Maximiliano Firtman
  - "Mobile Design and Development", Brian Fling
  - "HTML5: Up and Running", Mark Pilgrim

How Did We Do It?

mLearning Guide

- Introduction
- Basics
- Planning
- Learning Content
- Development Options
- Design Considerations
- Glossary
- Resources
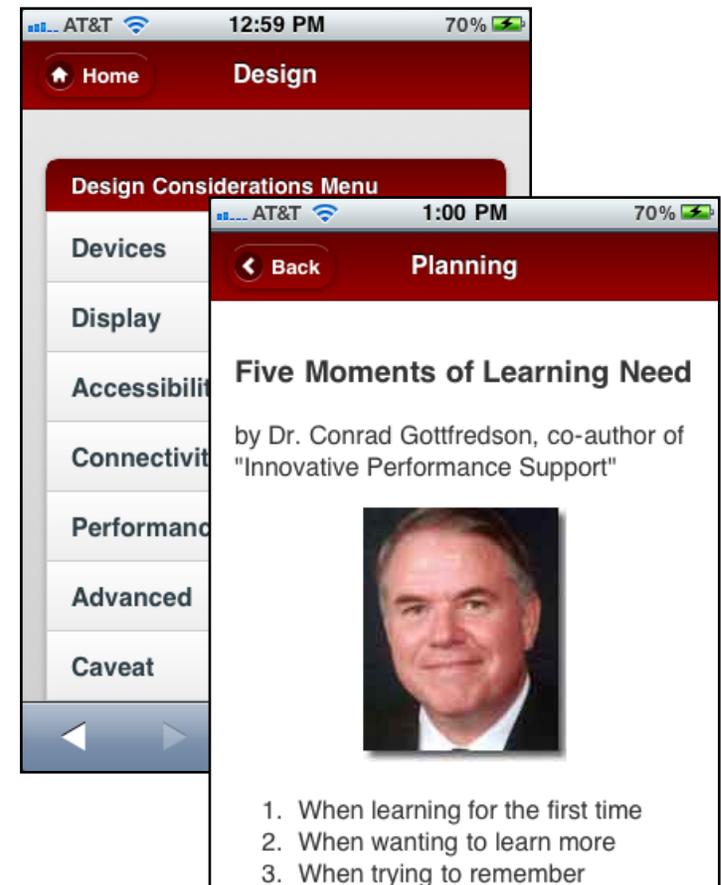
Topics & Features

mLearning Guide

Version 1

Other Formats
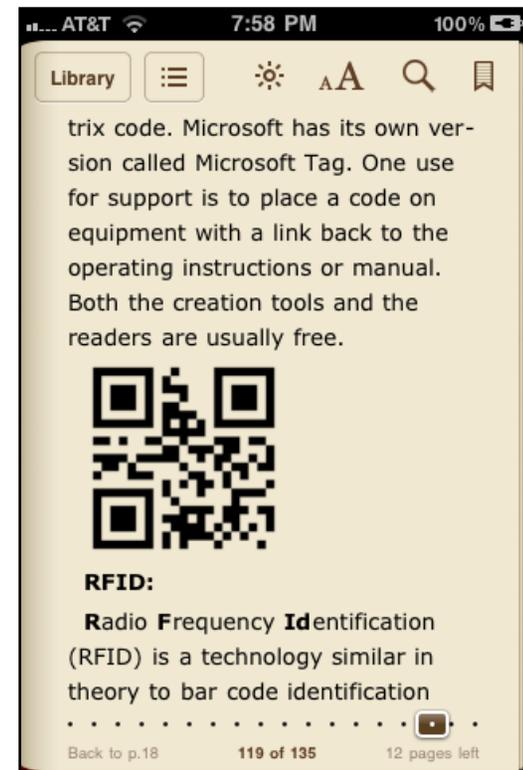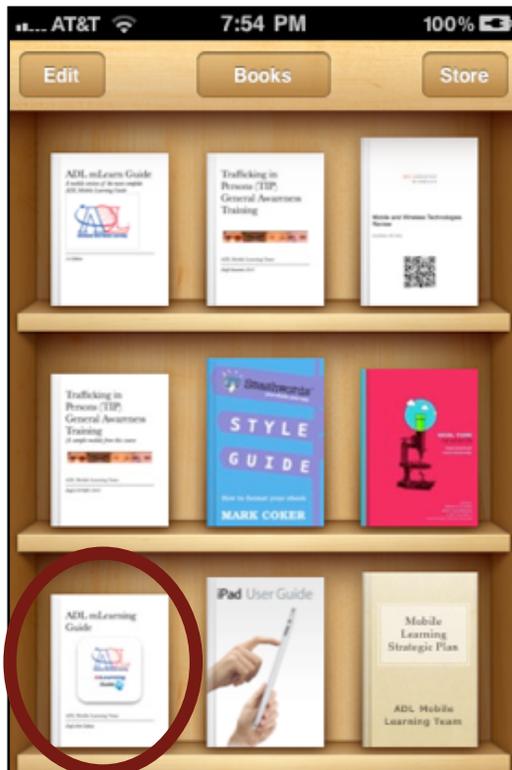
EPUB

mLearning Guide
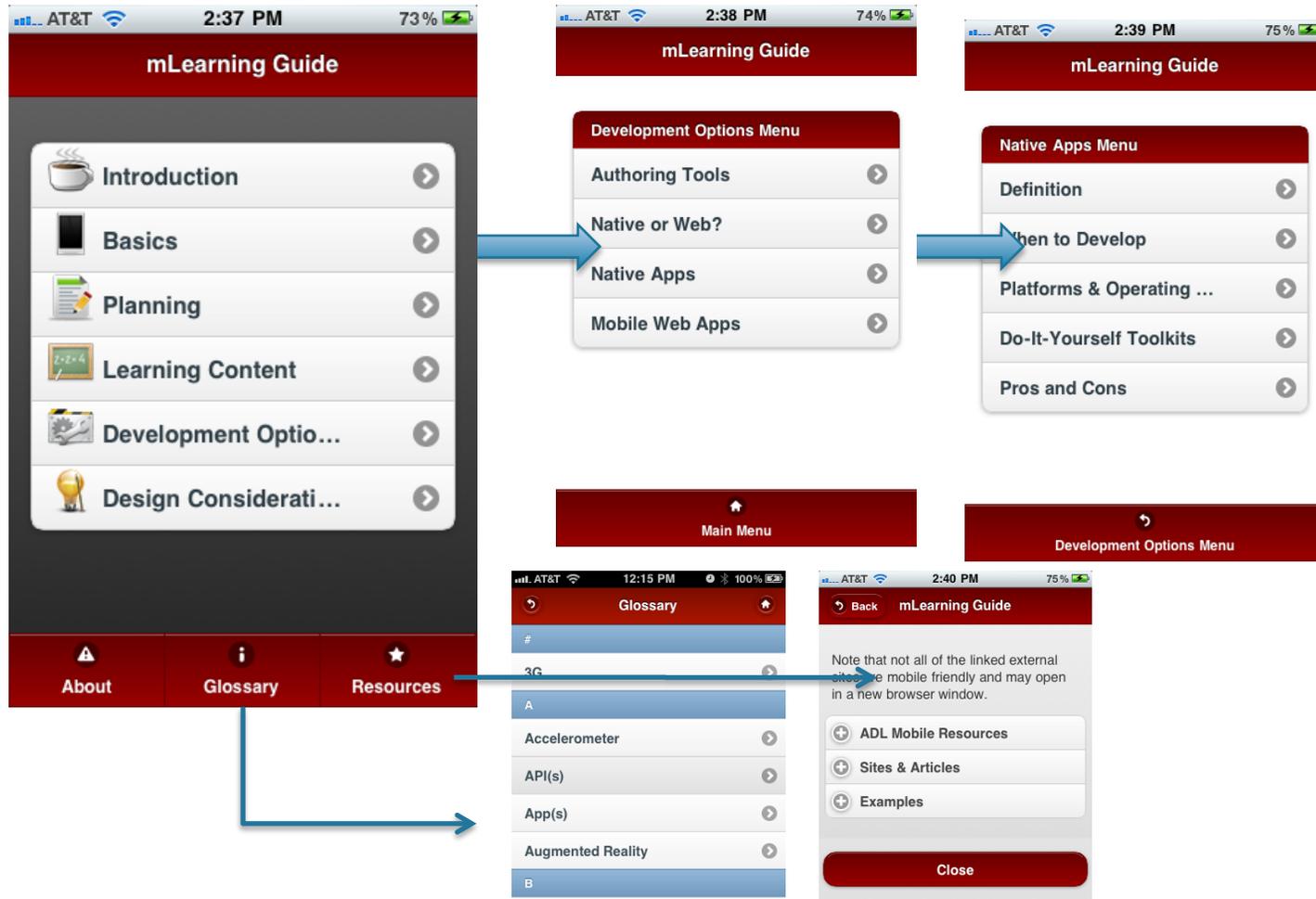
Version 2

Tools / Resources We Used

- Graphics editor (Fireworks)
- HTML editor (Dreamweaver CS 5.5)
  - jQuery Mobile Framework (for mobile content creation)
- PhoneGap Framework (for native app packaging & deployment)
- Books
  - "Programming the Mobile Web", Maximiliano Firtman
  - "Mobile Design and Development", Brian Fling
  - "HTML5: Up and Running", Mark Pilgrim

Why the Moble Web First

1.82 billion
web-enabled mobiles by 2013

http://filamentgroup.com/lab/building_with_jquery_mobile/

Native App, Web App, or Both

Native:
- *An application specifically designed to run on a device's operating system and machine firmware*
- *It typically needs to be adapted/adjusted for different devices*

Web:
- *An application in which all or some parts of the software are downloaded from the Web each time it is run*
- *It can usually be accessed from all web-capable mobile devices*

Source: Global Intelligence Alliance

Web App Stores:

Mozilla's Open Web App Store (2010)
- http://apps.mozillalabs.com

Open App Market (2010)
- http://www.openappmkt.com

Chrome Web Store (2010)
- http://chrome.google.com/webstore

GetJar HTML5 Mobile Web App Store
- http://www.getjar.com

Opera Mobile Web App Store (2011)
- http://apps.mozillalabs.com

Open Space (Under Development)
- https://www.developerscoop.org

On the Rise

Deployment

Client

Device	Devices	Any Devices (PC, TV, Car, Tablet...)
App Store	Browser	Browser

Server

Front Store Server — Native Appp

Front Web Server — Native App

Web App Store | Web App Store | Web App Store

Native App | Web App | Cloud
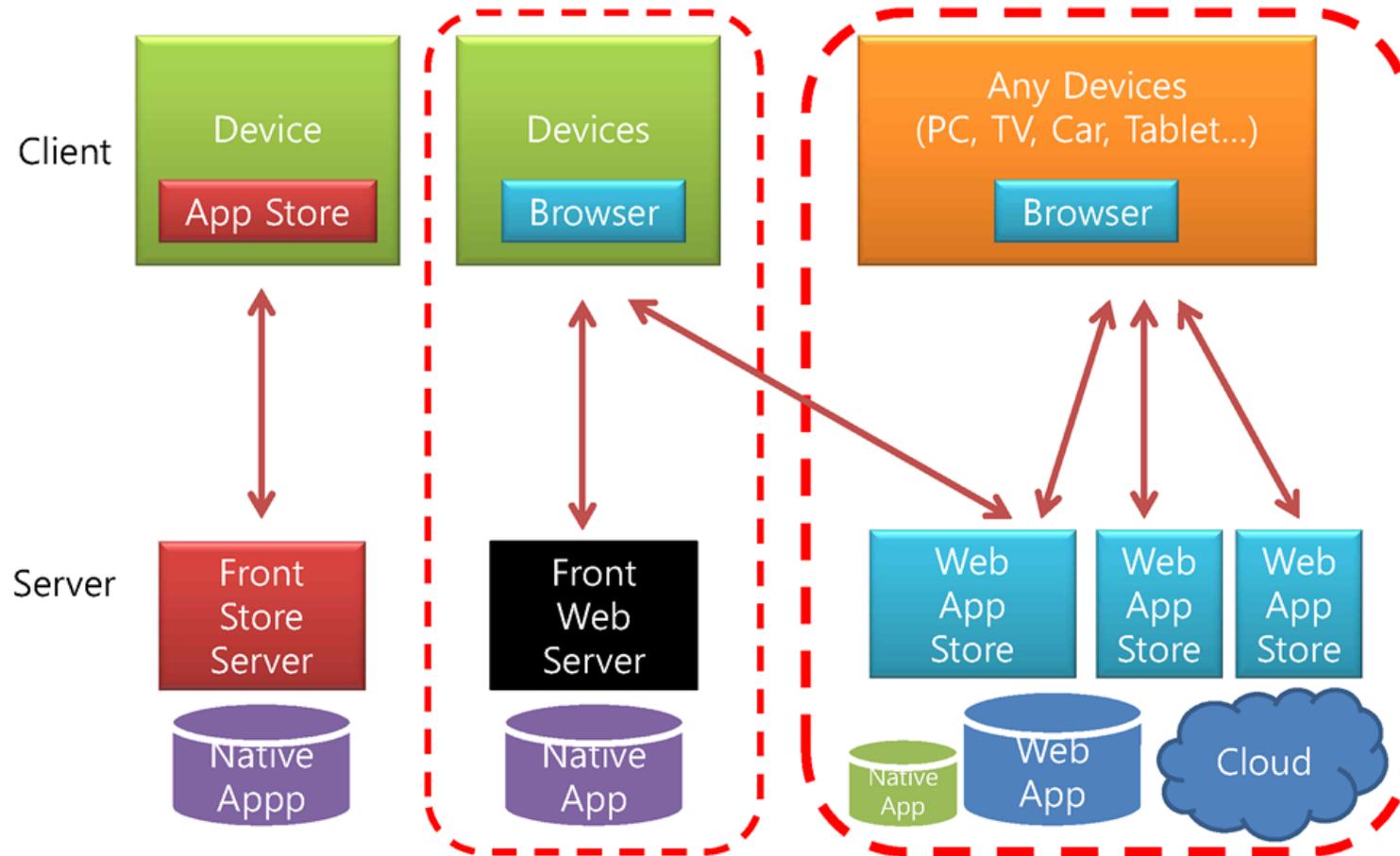
Native App Store vs. Mobile Web

Design Decisions

- Low Learning Curve (Knowledge of Dreamweaver, HTML, CSS, JavaScript)
- Simplified Navigation (usability)
- Small download
- Accessible as both Native and Web App
- Cross-platform compatibility
- Ease of deployment

Mobile Web Fameworks

- Developed using Web Standards (HTML, CSS, JavaScript)
  - Each framework usually consists of these file types and some additional images, templates
- Can be hosted on a web server – OR – packaged as Native App

Mobile Web App Frameworks

- ## HTML, CSS, JavaScript Only
  - iWebkit
  - JQTouch (JQuery Touch)
  - iUI (iPhone User Interface)
  - jQueryMobile (Only framework using Progressive Enhancement)

- ## HTML, CSS, JavaScript + Native App Publishing
  - Rhodes & RhoHub
  - Sencha Touch
  - Titanium Appcelerator

- ## Content Packaging using Existing Web Apps/Content
  - PhoneGap (now Apache Cordova)

What We Evaluated

jQuery Mobile

Bars

The default theme contains the following five Bar styles:

Bar A
Bar B
Bar C
Bar D
Bar E
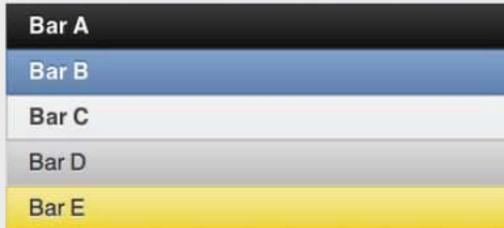
Content Blocks

The default theme also includes color swatch values for use in content blocks, designed to coordinate with the header color swatches in the theme.

Block A
Block B
Block C
Block D
Block E
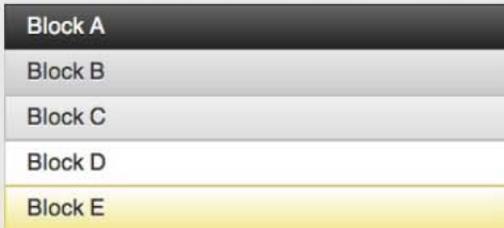
Lists & Buttons

Each swatch also includes default styles for interactive elements like list items and buttons.

List item	
List item	>
List item	>
List item	>
List item	>
List item	>
List item	>
List item	>
List item	>
List item	>
List item	>

http://jquerymobile.com
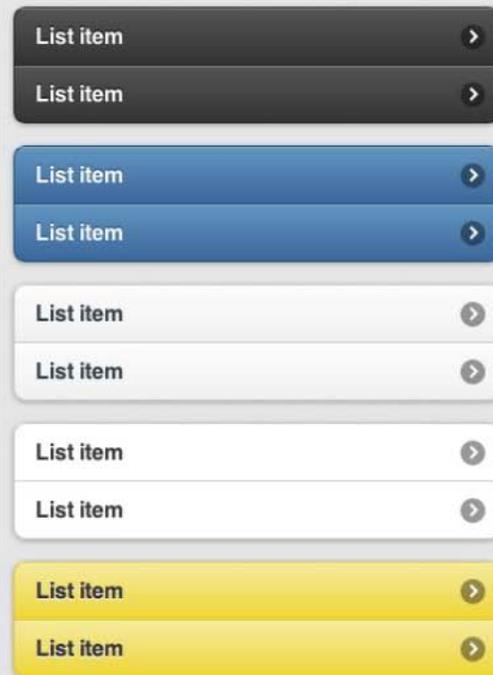
Dreamweaver CS5.5 "Mobile Starters"
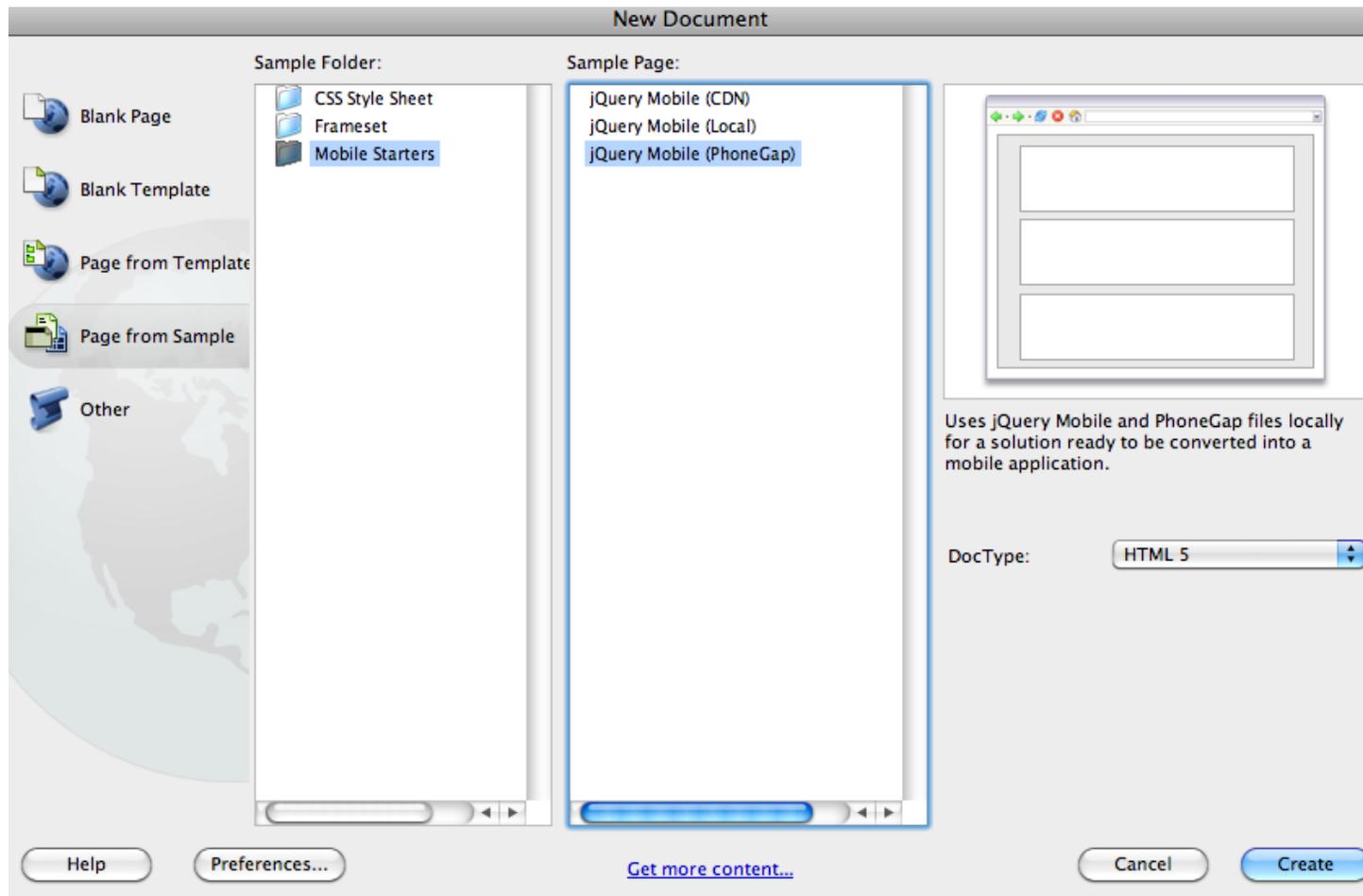
Samples Included!

EASY HTML!

```
<body>
<!-- Start of first page -->
<div data-role="page" id="foo">
<div data-role="header">
<h1>Foo</h1>
</div>
<!-- /header -->



<div data-role="content">
<p>I'm first in the source order so I'm shown as the page.</p>
<p>View internal page called <a href="#bar">bar</a></p>
</div>
<!-- /content -->



<div data-role="footer">
<h4>Page Footer</h4> </div>
<!-- /footer -->
</div>
<!-- /page -->
```
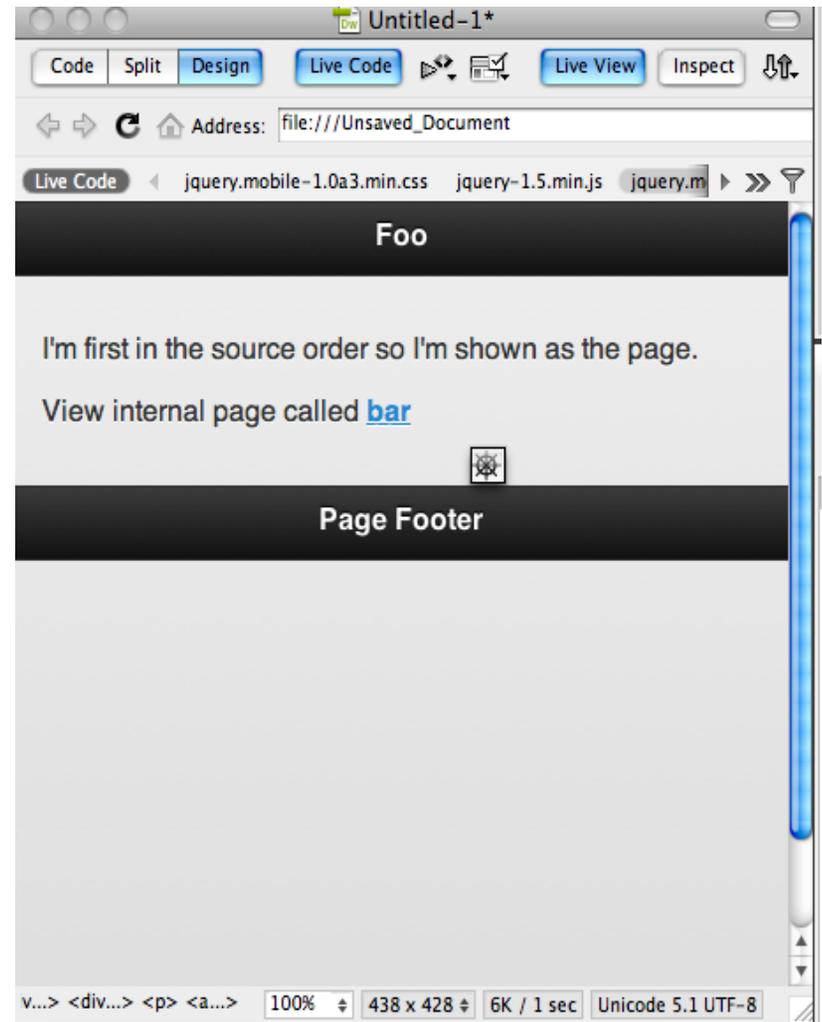

Header, Content Body, Footer

```
26
27   <!-- main menu -->
28   <div data-role="page" data-theme="a" id="menu">
29     <div data-role="header" data-theme="f" data-backbtn="false" data-position=
     "inline">
30   <h1>mLearning Guide</h1>
31     </div>
32     <!-- /header -->
33     <div data-role="content">
34       <ul data-role="listview" data-inset="true" data-theme="c"
     data-dividertheme="b">
35         <li><a href="#intro"><img src="images/iconintro.png" class=
     "ui-li-icon">  Introduction</a></li>
36         <li><a href="#basics"><img src="images/iconbasic.png" class=
     "ui-li-icon">  Basics</a></li>
37         <li><a href="#planning"><img src="images/iconplan.png" class=
     "ui-li-icon">  Planning</a></li>
38         <li><a href="#lcontent"><img src="images/iconlrn.png" class=
     "ui-li-icon">  Learning Content</a></li>
39         <li><a href="#development"><img src="images/icondev.png" class=
     "ui-li-icon">  Development Options</a></li>
40         <li><a href="#technical"><img src="images/icondes.png" class=
     "ui-li-icon">  Design Considerations</a></li>
41       </ul>
42     </div>
43     <!-- /content -->
44
45     <div data-role="footer"  data-theme="f" data-position="fixed">
46       <div data-role="navbar">
47         <ul>
48           <li><a href="#about" data-icon="alert" data-iconpos="top"
     data-transition="slideup">About</a></li>
49           <li><a href="glossary.html" data-icon="info" data-iconpos="top"
     data-transition="slideup">Glossary</a></li>
50           <li><a href="#resources" data-icon="star" data-iconpos="top"
     data-transition="slideup">Resources</a></li>
51         </ul>
52       </div>
53       <!-- /navbar -->
54     </div>
55     <!-- /footer -->
56   </div>
57   <!-- /main menu -->
58
59
60   <!-- ********************** -->
```

jQuery Mobile + PhoneGap =

iOS   ANDROID   BlackBerry   bada

Windows Phone   palm webOS   symbian   MeeGo

Write Once, Deploy to Multiple Platforms

Where's the Gap?

SUPPORTED: iOS, Android, palm, BlackBerry, symbian OS
COMING SOON: MeeGo, bada

Take the pain out of compiling mobile apps for multiple platforms

Say goodbye to SDKs, compilers and hardware. Simply write your app using HTML, CSS or JavaScript, upload it to the PhoneGap Build service and get back app-store ready apps for Apple iOS, Google Android, Palm, Symbian, BlackBerry and more.

By compiling in the cloud with PhoneGap Build, you get all the benefits of cross-platform development but can still build apps just the way you like.

Want to know more? Check out our FAQs.

Get cross-platform mobile apps in three easy steps

1. Write your app using HTML, CSS and JavaScript

2. Upload it to the PhoneGap Build service

3. Get back app-store ready apps for Apple iOS, Google Android, Palm, Symbian, Blackberry and more.

INTRODUCING
PhoneGap/build
Write Once. Compile in the cloud. Run anywhere.

To the Cloud!

Distribution

Android Market

iTunes App Store

USA.gov Apps Listing

http://apps.usa.gov/adl-mlearning-guide/

Mobile Lessons Learned

- An emulator is not always consistent with the actual device
- Limited support for Flash today (Adobe working HTML5)
- Poor / inconsistent support for pop-up windows and framesets
- Video Compatibility
  - Varying formats supported
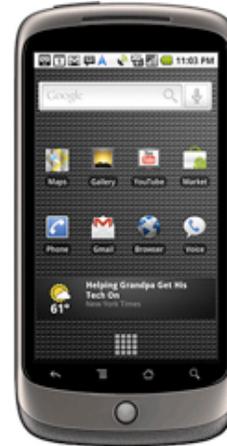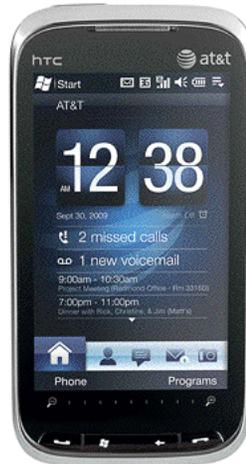 - Video fragmentation issues with Android

Mobile Video Formats

RIM BBOS	Apple iPhone OS	Microsoft Win Mobile	Google Android	Nokia Symbian	Palm Palm OS
MP4 / 3GP files	M4V / MP4 (wide)	WMV / 3GP files	MP4 / SWF files	MP4 / WMV files	MP4 / H263 files

Credit: OnPoint Digital

Mobile Lessons Learned

- Create. Don't convert!
- Scope: You can't support all device types. Narrow the scope and <u>focus on consistent user experience</u>
- Mobile first approach: potential for both a desktop and mobile deliverable from single code base
- SCORM on mobile browsers works, but provides a poor user experience
  - What level of tracking is actually needed? Bookmarking, completion, assessment, etc.
- Mobile Apps can be developed using HTML5 and support multiple platforms (both native and web)

Developing for Mobile Is Tough!

accessibility*

features

functionality

usability

performance

experience

bandwidth

a balancing act...

http://www.flickr.com/photos/superfantastic/50088733

Next Steps

Maintenance & Updates

   – Contextual updates

   – Framework updates

   – Search functionality

   – More App Store Distribution

      • Windows Phone

      • BlackBerry

      • Open Web App Stores

Mobile Learning Guide (App)

Resources

http://adlmobile.wikispaces.com

Resources

ADL Mobile Learning Newsletter 8 August 2011

Welcome to the Advanced Distributed Learning (ADL) weekly report on news and findings of interest related to mobile learning in the military.

The new ADL Mobile Learning Handbook is now available at http://mlhandbook.adlnet.gov. We are seeking your contributions and suggestions for this living document.

_____

Mobile Learning...

- How Mobile Computing and the Semantic Web Will Change Learning Forever - http://www.learningsolutionsmag.com/articles/722/how-mobile-computing-and-the-semantic-web-will-change-learning-forever
- 'Mobile learning, just for the sake of it, is definitely not a good idea!' – Some insights on Mobile Learning - http://www.gc-solutions.net/blog/?p=560
- Have Learning, Will Travel - http://clomedia.com/articles/view/4499
- iPad program prepares med students for 'wave of the future' - http://healthcareitnews.com/news/ipad-program-prepares-med-students-wave-future
- JIT Performance Support Mobile App Development [Vendor] - http://www.upsidelearning.com/blog/index.php/2011/08/02/jit-performance-support-mobile-app-development/
- Lessons on Nature From a Cellphone Call - http://travel.nytimes.com/2011/08/07/travel/fort-ord-dunes-state-park-calif-use-cellphones-to-guide-visitors.html
- mLearning from the Perspective of Generation Y - http://elearningplanet.com/2011/07/mlearning-from-the-perspective-of-generation-y/
- Mobile Exam Revision - http://thepegeek.com/2011/08/04/mobile-exam-revision/
- Mobile in the Mainstream [Vendor] - http://floatlearning.com/2011/08/mobile-in-the-mainstream/
- Mobile Learning: "A Perfect Storm" To Drive Changes In The Workplace - http://2020workplace.com/blog/?p=523
- The best that schools offer is never for everybody, mobile fixes that - http://www.goldenswamp.com/2011/07/31/the-best-that-schools-offer-is-never-for-everybody-mobile-fixes-that/
- The Mobile future's bright, the future's hybrid [Vendor] - http://www.line.co.uk/viewpoints/the-mobile-future%E2%80%99s-bright-the-future%E2%80%99s-hybrid/
- Thoughts from 2011 mLearn Mobile Learning: Part Two: Preparation [Vendor] - http://blog.outstart.com/pe/view.jsp?id=10104606 & Part Three: Presentation and Conclusion [Vendor] - http://blog.outstart.com/pe/action/km/viewelement?id=10104607

News Stories of Interest...

- Ultrafine Location Fixes - http://ww
- DoD studying clinical effects of bra effects-brain-injury-app/2011-07-2
- 10 Fascinating Facts About Mobile

http://research.adlnet.gov/newsletter/mobile

Mobile Learning Handbook

Resources

Tools Available

Many authoring tools can deliver content to mobile devices. The tools provide this capability by using a mobile device screen template and output files that work with the mobile device operating system.

However, tools are emerging that are specifically designed for mobile learning; for instance, providing authoring capability for audio learning content (e.g., spoken word, podcasts) along with associated interactive assessments and surveys. Other tools are optimized to provide e-learning content through the phone's web browsing capability.

There are several e-learning content authoring tools on the market that offer a mobile-friendly output version of your content. However, some of them are designed to run within their own platform and stand-alone portability isn't always possible. Some of these support SCORM output. Some of the tools that we've seen only target one screen size. This is not a definitive list of authoring tools.

Contents

1 Tools Available
  1.1 Authoring Tools
  1.2 Mobile Management
  1.3 Mobile Solutions
  1.4 Other

Authoring Tools

- Achieve Labs LearnCast
- BlackBerry Pushcast Software (formerly Chalk Pushcast)
- dominKnow Learning Systems' Claro
- Emantras MOBL 21™
- eXact learning solutions eXact Mobile
- Harbinger Group's Raptivity
- MentorMate iO
- OutStart Hot L
- Xyleme Pastiche (for iPad)
- Rapid Intake's mLearning Studio

http://mlhandbook.adlnet.gov

Mobile Management

- Blackboard: Blackboard Mobile

Resources

- ~~LearningGuide Solutions~~
- Meridian KSI: Meridian Anywhere
- Saba Anywhere

Mobile Solutions

- Intuition Rubicon
- OnPoint Digital CellCast

Other

- Adobe (development tools also support mobile)
- Questionmark's Perception
- Turning Technologies' ResponseWare

The ADL Mobile Learning Team is currently collecting information on available tools from vendors. Responses to date (27 July 2011) include 36 vendors in the spreadsheet and PDF files below.

Attachments (2)

http://mlhandbook.adlnet.gov

MLToolsVendors.pdf – on Jul 27, 2011 8:00 PM by Judy Brown (version 1)
 73k View Download

MLToolsVendors.xlsx – on Jul 27, 2011 8:01 PM by Judy Brown (version 1)
 59k View Download

How to Create mLearning Content and Apps

http://www.tk12.astd.org

Key Ideas

What are the key ideas you'll apply from today's session? (Please enter in Chat)

Marcus Birtwhistle
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Jason Haag (@J_Haag)
Contractor with The Tolliver Group
jason.haag.ctr@adlnet.gov

Let's Connect!