

Website to App: learning in your pocket

Site para App: aprendizagem em seu bolso

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Abstract: In addition to new structures and elements within web pages, HTML5 offers the potential to create free-standing apps that run on smart phones or tablets (iPod, iPhone, Android devices). Instructional Designers are always challenged to find ways to engage learners in their chosen domain. The mobile web is one path that HTML5 is opening to non-technical individuals. Using only the skills needed to create a website, educators can now create web pages with enhanced interactivity, personalization, and convenience, which can also be made into apps (portable programs) that run on a learner's smart phone or tablet. A hypertext presentation of clinical case-based scenarios serves as the example web-based instructional simulation for this exploration of the new HTML5 features and the potential for the mobile web in education.

INTRODUCTION

The term "Mobile Web" refers to web-based material that can be accessed from devices considered to be mobile, such as smart phones or tablets. Since a web browser is part of any such product, any website developed for instructional purposes can be easily adapted to run as an app on such a mobile device. This paper explores the reasons and methods for doing this, as well as the tools and complications of the process.

BACKGROUND

An instructional environment that can provide for rich presentation, personalization, and

interaction with subject matter can provide the mechanisms of active learning, leading to more effective instructional interactions (JOBE, n.d.-a). The set of additions and enhancements that have recently become part of HTML are ideal for the creation of such web-based environments (JOBE, 2011-b).

As new capabilities are added to the web-page palette, designers can use any of several tools to check on which browsers can support which of these new features (DEVERIA, n.d.).

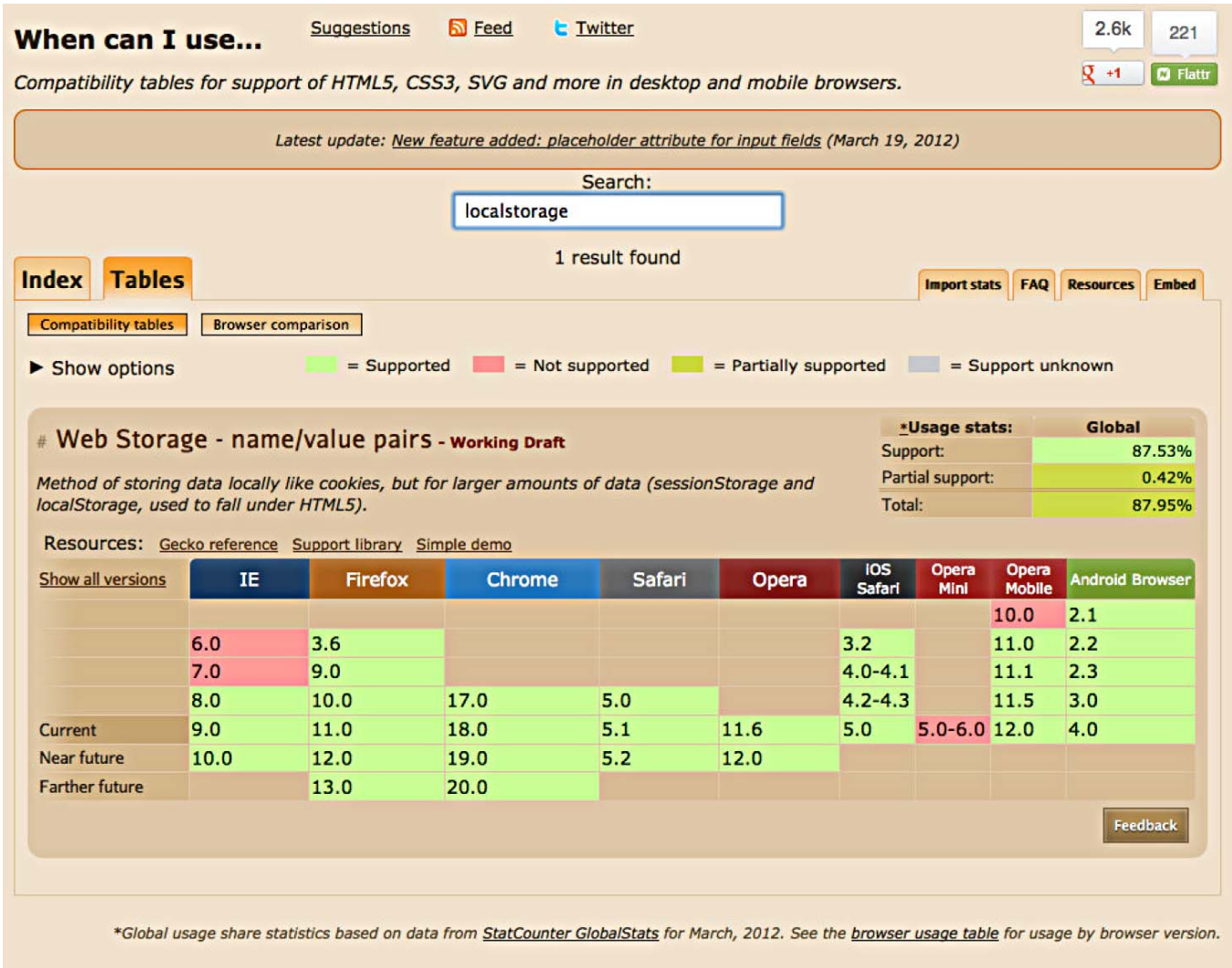


Figure 1: www.caniuse.com

THE BONFILS TRANSFUSION MEDICINE EDUCATION PROGRAM

Since 1990, Bonfils Blood Center in Denver, Colorado has been implementing hypertext-based instructional simulations covering topics in Transfusion Medicine (HEATH, HIGGS, & AMBRUSO, 2008). Since 2000, these have been translated into

HTML and offered from our website (www.bonfils.org/courseware/).

Currently, one of the four existing modules has been edited into XHTML form, and HTML5 features are being incorporated wherever possible.

Hhandling transfusion hazards
instructional simulations in transfusion medicine

This program is designed to give you practice solving actual clinical problems in transfusion medicine just as a practicing physician would.

Specifically, the program presents you with several cases demonstrating various adverse risks of transfusion medicine. Your task is to diagnose and act on the transfusion problems presented in each case. To accomplish this task, you will need to collect relevant information, order and interpret lab tests, assess, and manage transfusion patients (donors or recipients).

You might want to start off with a look at the **Orientation**, then proceed to **The Case of the Backwards Glance**.

practice cases

- the case of the backwards glance
- the case of the open window
- the case of fainting freddie
- the case of the golden eyes
- the case of the unexpected finding
- the case of the one-armed painter

test cases

- the case of the heinous hemorrhoids
- the case of the deceptive disclosure
- the case of the dilutional dilemma
- the case of the minor donor

CC BY NC ND Handling Transfusion Hazards
Transfusion Medicine Education Program

Figure 2: A Bonfils Transfusion Medicine Education Program module

In the field of Medical Education, growing interest has been shown in both constructivist approaches and distance learning (WALSH et al., 2011). Comparisons of various forms of computer-mediated instructional presentations have shown the utility of these approaches, especially in ill-defined, complex domains (CHARLIN & VAN DER VLEUTEN, 2004).

ENTER HTML5

Several capabilities have been added to the programming language that provides the appearance and behavior of web pages. These added capabilities have been labeled 'HTML5'. Although 5.0 is not an official designation, it has

been so long since HTML 4.1 became an official standard that everything to come along since has been unofficially dubbed HTML5 (LAWSON & SHARP, 2012).

INSTRUCTIONAL DESIGN AND THE MOBILE WEB

A clearly marked path now exists for instructional materials designers to develop material for the web as well as for use in mobile devices (NIXON, 2011). The mobile device environment, however, includes a host of constraints and complications that the designer must deal with (MAXWELL et al., 2011)

Location	Mobile users can use their mobile device wherever they are.
Locomotion	Mobile users can use their mobile device on the go. Users may be walking, running, in a car, on a boat, or in any other manner of motion while using a mobile device.
Immediacy	Mobile users can use their mobile device at a moment's notice.
Intimacy	Mobile users may use multiple devices for different purposes, and a device's use can vary from a digital appendage to an occasionally used device for a specific personal or work task.
Device	<ul style="list-style-type: none">• Mobile devices vary greatly in form factor and capabilities.• Smartphones, eReaders, tablets, and other devices.

Figure 3: Mobile App design constraints

THE APPMOBI FRAMEWORK

Several commercial-level application development and deployment systems have become available just in the last few months. One is being made available at no charge under the name

appMobi XDK (appMobi, 2011). The XDK stands for Cross-platform Development Kit, with support for iOS and Android for now, although Blackberry and Windows have come up in their forums.

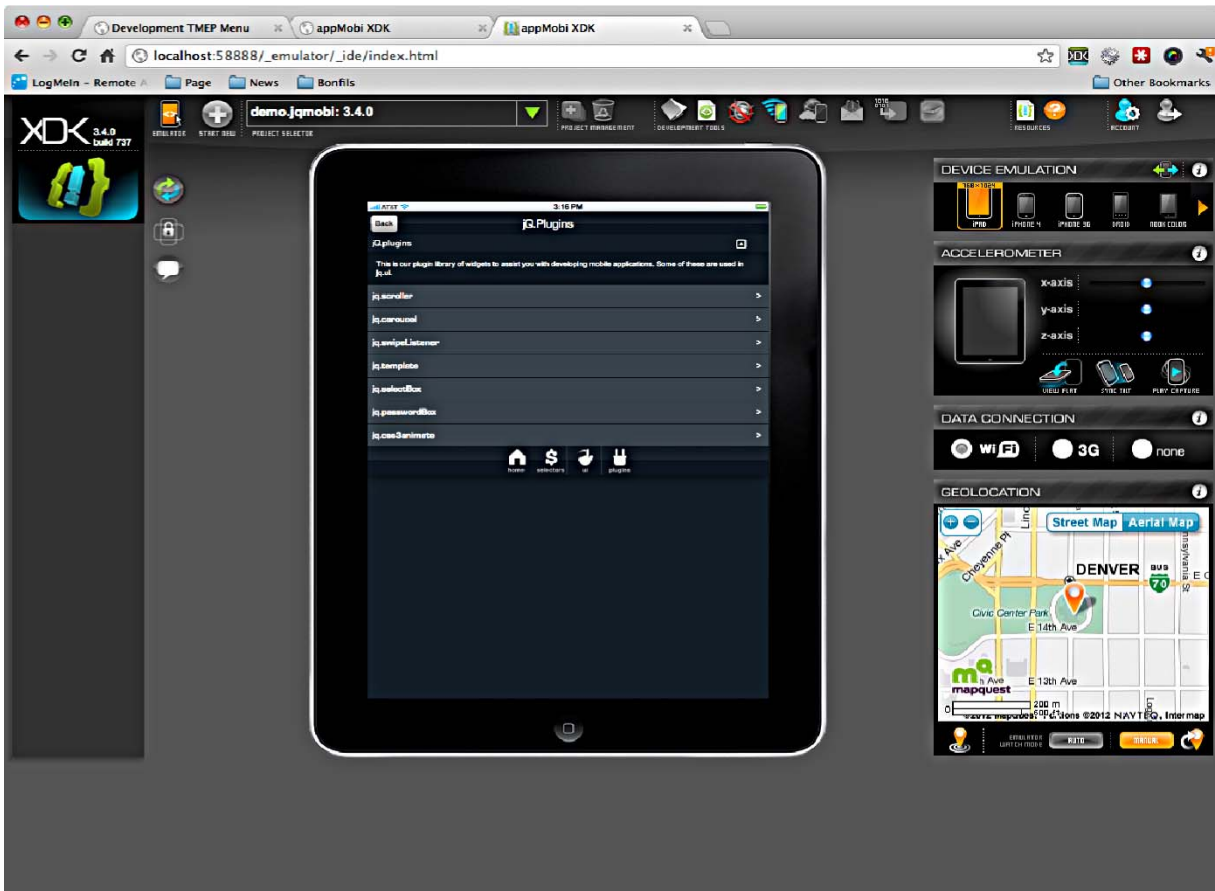


Figure 4: The AppMobi XDK editor.

MINIMAL FRAMEWORKS: GOOGLE ECLIPSE AND APPLE XCODE

The dominant programming environments for mobile devices are Apple's iOS (iPod, iPhone, and iPad) and Google's Android. These two require

their own development environments: Apple's Xcode and Google's Android SDK.

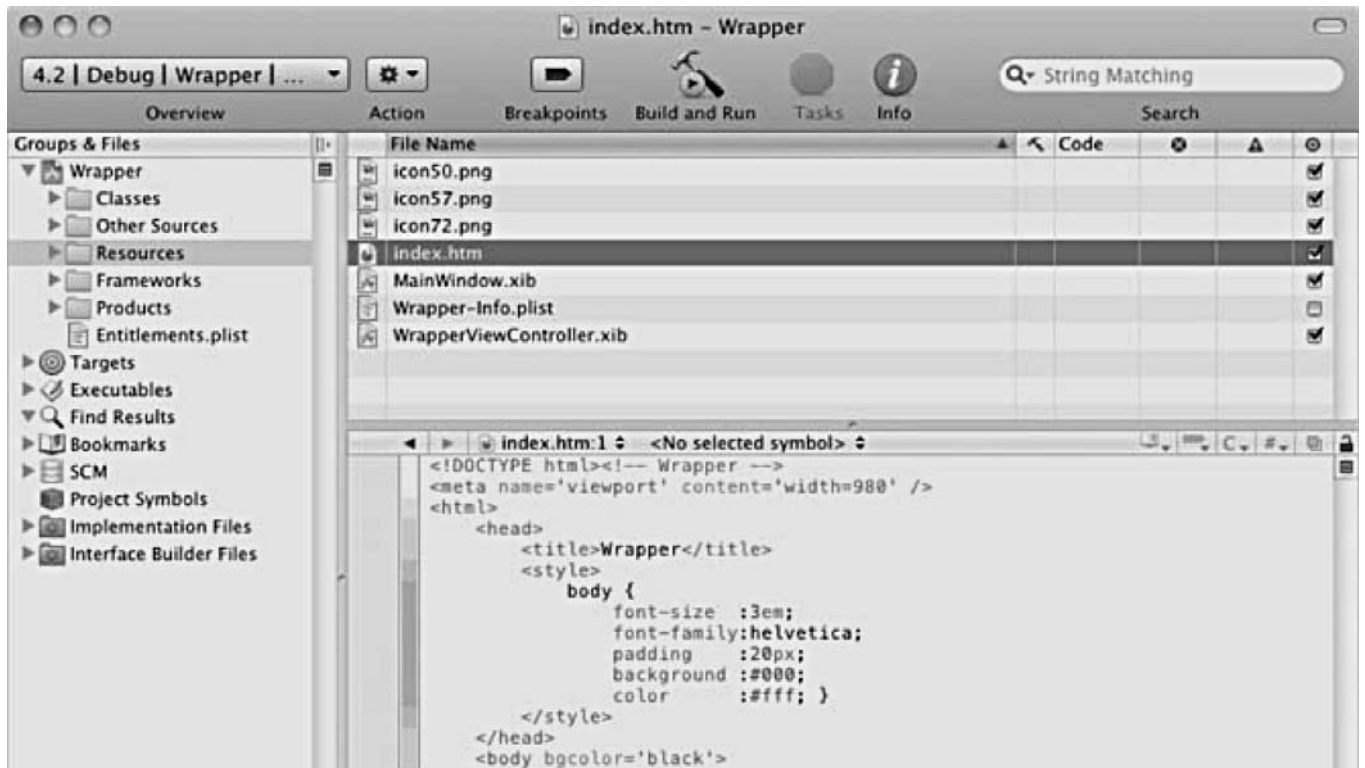


Figure 5: The Apple Xcode editor.

CONCLUSIONS

New capabilities added to HTML support longstanding instructional design approaches, and many current mobile devices can use HTML5 websites. Support systems are becoming available that can allow nonprofessionals to create mobile-

device stand-alone apps. Designing those websites for use on mobile devices requires some design modification, both in terms of physical limits (screen size, interface options, etc.) and situational (in noisy rooms, outdoors, etc.).

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