Fluid
Designing software that works - for everyone

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Not like any other project...
Why Fluid?
Diverse, demanding, creative users
Tools must be usable and undemanding

- Users should focus on teaching, learning, research and administrative tasks… not on operating the tools

- Institutions should invest in furthering research and learning not in…ballooning support needs

- Institutions should not be concerned with cost of tool rejection and difficult implementations

- Tools should be platforms for innovation
Institutional Obligation and Commitment to:

- Accessibility
- Internationalization
- Quality Assurance
- Security
Currently…

- Systemic problem of poor and inconsistent user interface
- Often left to programmers
- Tackled at the end
- Redundantly developed
- Inadequately tested and refined
- UX designers not well integrated into development culture
- Poor UX an impediment to adoption
- And....
“You say tomato, I say tomato, lets call the whole thing off”

- Academic communities are very diverse
- We differ greatly in our preferences, needs, habits, concepts, comforts, convictions.
  - Institutional preferences and branding
  - Conventions of academic discipline
  - Cultural differences
  - Linguistic differences
  - Differences related to age
  - Differences related to role and perspective
  - Different teaching approaches
  - Different learning approaches
  - Disability and environmental constraints
Differences related to academic discipline

Differ with respect to:
• language (e.g., the meaning of color)
• values and notions of quality
• tools
• environment
• modes of interaction and academic engagement

In academia we foster and thrive on diversity.
Accessibility

- Legal commitment to equal access (Rehab 508, Section 255, ADA, state commitments, institutional policies)
- No system-wide strategy, band-aid approach at greater and greater cost
- Not integrated or carried forward into future iterations
- Accessibility guidelines seen to constrain creativity
- “Accessible for everyone, optimal for no one”
Goal: Consistent User Experience

• But…
• Growing number of tools
• Growing number of developers

• Want…
• A consistent identifiable look
• Intuitiveness and transparency of design
• Consistent quality
Consistent User Experience vs. Accommodating Differences

• Do we need to choose?
• Or can we have our cake and eat it too?
Fluid: “Flexible User Interface”

- Swappable styles
- Modular, reusable UI components
- Either runtime transformation for unique needs of individual
- Or customization at configuration
The Fluid Approach to UX in Community Source

• UX is a challenge for all open source projects and all institutions

• Cross-project collaboration:
  – Share scarce UX resources across projects
  – Solve common challenges
  – Recognize recurring user interface idioms and needs

• Fluid is looking at common problems:
  – How do non-technical people get involved in OSS?
  – How can we help designers and developers speak the same language?
  – How do you do user testing in a distributed environment?
Breaking down barriers, addressing cross-cutting needs

Sakai | uPortal | Moodle | OpenCollection | Kuali

CONTENT MANAGEMENT

- File Uploading
- Reworked, lightweight File Picking
- Tagging and Tag Clouds
- Smart folders, “playlists,” contextual filtering
- Favourites and Clipboard/File Basket
- Infrastructure: Accessible Thick Box, Tree, Sortable Tabs
- Drag and drop portlets
Currently Participating Projects…

- Sakai
- uPortal
- OpenCollection
- Moodle
- Kuali Student
- …Others
- Your project?

- Your institution?
What are we Building?

- Rich, flexible, reusable user interface components
- Lightweight JavaScript development tools
- User Experience Toolkit
- Great Interaction Designs
Interconnected Activities

Fluid

UX Toolkit

Javascript Accessibility

dojo

Fluid Components

User Experience
UX Toolkit
UX Toolkit

• UI Design Patterns:
  – Open Source Design Patterns Library
  – Shared design advice and guidance

• UX Walkthroughs:
  – Tools for assessing your user experience

• Testing techniques and guidelines
  – How to test your designs and talk to users

• User profile library:
  – Understanding higher education users and beyond

• All the stuff you need to design great interfaces!
Designing Components

• Components are recurring interactions
• Encompass familiar activities on the Web:
  – Working with files, uploading, finding stuff
  – Navigating through content and tools
  – Rich interactions: drag and drop, etc.
• They are often larger than familiar widgets
UX Walkthroughs

• Provide a tool that communities can use to assess their own usability and accessibility
• Identify user pain points and solutions
• Share simple, approachable techniques
• Anyone can do a UX walkthrough:
  – Try out our checklists and heuristics
  – We’re here to help you get started
U-Camps

- Our main educational effort
- Everyone should have a basic UX vocabulary
- Share a repertoire of viable UX techniques
- Opportunity for designers and developers to collaborate
- Loose agenda, open participation
Virtual Usability Lab

- Open source distributed usability testing
- Competition to expensive tools like Morae
- Before and after survey questions
- Remote screen recording
- No installation required
- Mouse and keyboard tracking
- Designed within a community that needs it!
UI Design Patterns

- A pattern is a proven solution to a common problem in a specified context
- Practical tool to help designers and developers choose the right interface for the job
- Advice on how to use Fluid components
- Share patterns across communities
  - Tag, customize, adapt for your context
- Open Source Design Patterns Library:
  - The first truly open, collaborative pattern repository
Component Architecture
Technical Goals

• Make it easier for developers to build better, more accessible user interfaces
• Support collaboration with designers
• Foster sharing of design and code
• Adaptable for a variety of tools and workflows
• Embrace the Web
• Support diverse presentation frameworks
• Don't reinvent the wheel: leverage good existing technologies and fill the gaps
What is a Fluid Component?

- **Client-side:**
  - HTML
  - Style sheets
  - JavaScript for behavioural logic
  - Accessibility metadata

- **And on the server-side:**
  - Binding conventions: markup with known, formal IDs
  - Ability to respond to RESTful requests
  - Ability to deliver the appropriate markup or data
A Flexible Framework

• Solve the need for reuse and accessibility together
• Components need to adapt to different contexts:
  – Available screen real estate
  – Type of content
  – Amount of content
  – Method of control and navigation
• Leverage the web’s strength in separating structure from presentation
• Augment with alternative behaviours
UI Adaptation

• Flexible layouts and linearization:
  – Expandable spacing, sizing, fonts, layouts
  – Flatten multi-column views into a single column

• Enhanced Navigational Aids:
  – Turn on/off sitemaps, summaries, and breadcrumbs
  – "Focus mode:" collapse distracting or extraneous screen real estate

• Keyboard support:
  – Shortcuts: configure or remap them as needed
  – Navigation: comprehensive or quick navigation
Composition = Flexibility

- Fluid components are built out of smaller units
  - Keyboard handlers
  - Layout managers
  - Server callbacks
- Composition enables flexibility
  - At runtime, wire up alternative behaviour
  - Use web standards to change presentation (HTML/CSS)
- Easy to extend or modify component behaviour
Component Composition

- CSS
- HTML Markup
- Keyboard Mappings
- Layout Handlers
- XMLHttpRequest
- Server Callbacks
The Fluid Framework

• Make DHTML accessibility a lot easier:
  – Focus management
  – Keyboard handlers
  – Getting/setting ARIA properties

• Framework infrastructure:
  – Dependency injection
  – Server-side communication
  – Portal-friendly DOM conventions

• Adaptation:
  – The ability to wire up component behaviour at runtime

• As small as possible…
Fluid Framework Illustrated

- Components
  - UI Adaptation Engine
  - Reorderer
  - Text Editing Service
  - Dependency Management
  - Template Renderer
  - Accessibility Plugins
  - DOM Binding
  - Universal View Bus (AJAX)
- jQuery
What We’re Not Doing

• Writing yet another JavaScript toolkit
• Writing more of the same widgets
• Expecting everyone to agree
What We Are Doing

• Reusing existing toolkits and technologies
• Addressing the gaps in existing offerings:
  – Accessibility
  – Personalization
  – Client/server cooperation
• Making tools that are aimed at the Web developer skillset, not only the Enterprise Java types
• Working with UI designers to create great components that encompass user activities
Project Roadmap
Release Plan

• Quarterly milestone releases
• Whole package:
  – Components, framework, UX Toolkit, Documentation
• Major Goals:
  – User research
  – Components for managing your files
  – Viable framework: everyone can build components
  – Open Source Design Patterns Library
Adoption Timeline

- **June 2008**
  - Fluid 0.4
  - toolkit accessibility
  - framework definition

- **December 2008**
  - Fluid 0.8
  - ui accessibility adoption
  - file management components
  - sustainable, active community

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**Build and Share Your Own Fluid Components**

- **March 2008**
  - Fluid 0.3
  - framework development
  - open design patterns library

- **September 2008**
  - Fluid 0.6
  - new components, framework refinements
  - expand ux toolkit

- **March 2009**
  - Fluid 1.0
  - APIs Stabilize

Highlights to Date

- Pioneered new accessible drag and drop interactions
- Lightbox and Portal Layout Organizer
- Established primary strategies for Fluid framework
- UX Walkthroughs
- Released Fluid 0.1; lots more to come!
Lower Manhattan Collection

Start Slide Show

Sort order: Instructor default  Alphabetical

wall street.jpg
lower manhattan street.jpg
rebuilding.jpg
approaching wall street.jpg
lower manhattan.jpg
nyc building.jpg
near city hall.jpg
wtc what's left.jpg
battery park.jpg
wtc subway.jpg
Coming soon… Fluid 0.2

• Maintenance release
• Strengthens our existing code base, adding:
  – Production-friendly release packaging
  – Support for almost any markup you can throw at it
  – Improve screenreader support
  – Consolidation on jQuery
• How you can help:
  – bug fixes, write test markup, try out the Reorderer
Fluid 0.3: April 2008

- Contextual inquiry and design framework
- Prototype File Upload component
- Date picking and smart paging
- Portlet Layout Manager (drag and drop portlets)
- Several new design patterns
- How you can help:
  - Get involved in user research
  - Code, designs, testing for new components
  - Write a design pattern
# Smart Pager

**Fluid**

Designing software that works - for everyone

Start typing a name...  Find

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<th>Email Address</th>
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Viewing 11-20 of 194
Time/Date Picker

February 21, 2008
Open on: 2/21/2008 11:30 AM

February 22, 2008
Due on: 2/22/2008 7:30 PM

Click

February 21, 2008
Open on: 2/21/2008 11:30 AM

February 22, 2008
Due on: 2/22/2008 7:30 PM
Fluid 0.4: June 2008

- File Picker
- Upload 2.0
- Tagging
- U-Camps
- New design patterns

**How you can help:**
- Join the U-Camp team
- Code, designs, testing
- Integrate components into your tools
Fluid 0.6: September 2008

• Focus on adaptation
• User preferences editor
• Accessibility design patterns
• A new wave of UX walkthroughs, targeted at file management

• How you can help:
  – Accessibility testing
  – Help with UX walkthroughs
  – Component and framework development help
Fluid 0.8: December 2008

- Two new components
- U-Camps
- Updated design patterns CMS
- Lots of user testing
Two new components
Polished do-it-yourself UX Walkthrough kit
Framework next steps
How you can help:
– Roll Fluid components into your tool
– Coding, design, user testing
– Help with QA effort
– Contribute to vision for post-funding phase
Getting Involved
How You Can Help

- Join our mailing lists
- Share code
- Help with design effort
  - UX Walkthroughs are fun and easy
  - Contextual inquiry
  - Component design teams
- Use and extend Fluid components in your tools
- QA: design test plans, help with testing
- User testing
- Share design patterns
Fluid Pioneering...

- New approaches to user experience design
- New, more sustainable, approaches to accessibility
User experience design

- Participant consumer
- Ownership and engagement in designing tools and systems they will use
- Reflective practice
- Tolerance and enthusiasm for trying new ideas and experimenting with new approaches
Sustainable, integrated accessibility

- Part of framework and components
- Integrated and propagated throughout any new work
- Supporting individual customization
Join in....

• Fluid Project Web Site: http://fluidproject.org

• Our wiki: http://wiki.fluidproject.org

• Our source code: https://source.fluidproject.org/svn

• Our mailing lists: fluid-work@ for community collaboration fluid-talk@ for anything you’re interested in
Your turn...

• Pet user experience peeve?

• Design and development process frustrations?

• Component wish list?