Ensemble
Project Overview

Boots Cassel
Villanova University

THE COMMUNITY AND THE GOALS

The computing portal in NSDL as a unifying force for the computing education community
The Team

- Here today
  - Boots Cassel, project lead, Villanova University
  - Ed Fox, portal lead, Virginia Tech
  - Lois Delcambre, Portland State University
  - Rick Furuta, Texas A & M
  - Dan Garcia, U. California, Berkeley
  - Frank Shipman, Texas A & M
  - Greg Hislop, Drexel University
  - Monika Akbar, Virginia Tech

- Virtually here
  - Peter Brusilovski, University of Pittsburgh
  - Steve Carpenter, Texas A & M

- Here in spirit: the team (see our poster, #20)

Supporting Social Interaction in the Ensemble Pathway Project
www.computingportal.org
Serving a community

- Computing education spans many sub-disciplines and many separate groups.

- Like a musical ensemble, the individuals make beautiful results when they work together in harmony.

- The Ensemble project serves all of the computing education community.
Ensemble: A Community Center

- Many sources of content
- Many active entities
- No sense in duplicating or trying to move all of them
- Provide a place for connections to be made and synergies to be realized
- Three essential elements:
  - Content
  - Communities
  - Tools
Content

- Resources stored
  - Locally created
  - Stored in our own repositories

- Meta-data for resources stored elsewhere
  - Active, well-managed collections under the control of others, but known to Ensemble
  - Regular harvesting for incremental indexing

- Search tools that extend to resources that we cannot yet index, as well as for local information
Communities

- Support for groups doing shared work
  - ACM Education Board and Council
  - Future of Computing Education Summit Action Groups
  - CS1 Community Site
  - TECH Developers
  - Our own Development effort

- A meeting place, a work place -- independent of parent organizations.
Tools

- Visual Knowledge Builder
- Walden’s Paths
- Ensemble in Second Life
- More, “Coming Soon…”
- Tools that can be used now, many adaptable to other Pathways, to enhance the teaching and learning endeavor
Active involvement

- Comment, Rate, Tag (CRT)
  - Drupal provides facilities
  - Enabled to allow easy participation

- Support of relevant group activities
  - Work spaces
  - Posting of documents for review and comment
  - Photo gallery to provide a social environment
Computing Ontology

- ALGORITHMS AND THEORY (1)
- Computer and network systems (0)
- Computer Graphics (0)
- Computer Hardware Organization (0)
- Computing Education (0)
- Data storage representations (0)
- Database Application Interface (0)
- DISCRETE STRUCTURES (0)
- Files and Database topics (0)
- History of Computing (0)
- Intelligent Systems (0)
- Knowledge management (0)
- Managing the Database Environment (0)
- Mathematical Foundations (0)
- Programming Fundamentals (0)
- Programming Languages (0)
- Properties of data (0)
- Security and Information Assurance (0)
- Societal and Ethical Structure of Computing (0)
- Special purpose databases (0)
- Systems & Project Management (0)
- Systems development (0)
- User Interface (0)

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Coming next

- Ed Fox and Steve Carpenter on Ensemble in Second Life (SL)
- Peter Brusilovsky on Social Intelligence
  - Delivered by way of Second Life
- Dan Garcia on Rewards
- Lois Delcambre on the CS1 Community site
- Back to me for wrap-up, questions, and discussion
ED FOX AND STEVE CARPENTER

Ensemble in Second Life
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www.computingportal.org
Facebook Integration

- Facebook group – Computing Ensemble
  - please join & contribute
- Facebook Application – CATSpace
  - a social repository of Computer Science assignments designed for use by CS instructors and students.
Ensemble in Second Life

http://slurl.com/secondlife/Educators%20Coop%204/66/236/28

The Ensemble Pavilion is located in the online virtual world Second Life.

The Ensemble Pavilion is conceived as a flexible, multi-use space that will evolve as the project develops.
Adjacent to the Pavilion is a four-storey virtual library that parallels the structure of the Ensemble Computing Portal.

The first floor houses communities, the second floor contains collections and the third floor offers tools. The fourth floor is designated for in-world lectures and seminars on computing.
Ensemble in Second Life

The Ensemble Pavilion offers:

- teleports to other computing sites in Second Life like the Digital Preserve
- hyperlinks to related computing websites
- RSS readers with feeds from computing and computing education blogs
- membership in the Ensemble Computing group in Second Life, Facebook, and Twitter

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The Ensemble Pavilion takes advantage of social networking and academic affordances of Second Life that are absent from traditional web-based formats.

The interactivity made possible by Second Life and other virtual worlds poses challenges and possibilities for current and future computing education, research, and development.
Social Intelligence
or, “Using Community Wisdom to guide learners to the right content ...”

Peter Brusilovsky
University of Pittsburgh

HOW TO

use the cumulative actions of portal users to guide future users?
The New Web: the Web of People

http://www.veryweb.it/?page_id=27

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Social Information Access

- What kinds of user traces can be used?
  - Browsing
  - Tagging
  - Ratings
  - Comments

- What kind of social guidance can be provided?
  - Social navigation support
  - Social search
  - Collaborative recommendations
Ratings and Reviews

Customer Reviews
Apple 8 GB iPod nano AAC/MP3 Player Black (3rd Generation)

206 Reviews

5 star: 127
4 star: 42
3 star: 15
2 star: 8
1 star: 14

Average Customer Review

Share your thoughts with other customers
Create your own review

The most helpful favorable review
160 of 173 people found the following review helpful:

Apple improves the Nano and delivers an enjoyable player.
Apple's new nano is designed to improve upon the past models and add some functionality. The improved video, smaller thinner body and updated firmware are enough to make it stand out. The slightly lower price tag is also sure to help sell more units.

The Looks

The most helpful critical review
99 of 118 people found the following review helpful:

I like it, but it has two major drawbacks for my needs
If TV out isn't important to you, or you don't care about playing podcasts back to back without fiddling with the ipod, then I'm sure you'll still love the new 3g nano. I like the video feature, the size (great for commuting), style, and colors of the new nano 3g, and ipods have the easiest/best way of selecting and sorting through music of any MP3 player out there...

Read the full review ➤


To get this item by Thursday, Jan 10 order within 17hr 27min.

Get Free Shipping for a full month with a Free Trial of Amazon Prime. learn more

FREE Upgrade to Two-Day Shipping on this item with Amazon Prime

Search Customer Reviews

Only search this product's reviews
Bookmarking and Tagging

- Bookmarking of a resource indicates users’ interests.
- Tags indicate aspects of resources, which are interesting to the user.
  - Tagging in del.icio.us
  - Tagging in CiteULike
Extraction and Composition

- More sophisticated tools in the Computing Portal allow collecting unique social wisdom.
  - Composing a path from resources
  - Extracting a fragment of an existing resource
Social Navigation in Ensemble

PAWS Tools accessed through ENSEMBLE: Darker bullets indicate resources that community users explored more frequently.

Object-Oriented Programming I (Java I)

This collection of resources provides introduction to the concepts, principles, and skills of programming, including compilers, algorithms, and problem solving using a high level programming language such as Java.

- Variables
  - Variable Declaration (WebEx)
  - Darker Green shade means good progress (actual value 24 interactions with this resource.)
  - Variables [2] (QuizJET)
  - Variables [3] (QuizJET)
  - Variables [4] (QuizJET)
  - Variables [5] (QuizJET)

- Objects
- Classes
- Primitive Data Types

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Social Search with Visual Cues

- Using collective intelligence in search context

KnowledgeSea Search

Query: dynamic allocation of memory

Stemmed query: dynam alloc memori | 370 of 2498 documents retrieved (score > 0.01), Search time: 0.10 seconds | View with Lighthouse

Removed common words: of

Result pages: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

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<th>Source</th>
<th>Title</th>
<th>Score</th>
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<td>Chapter 11: Memory A ...</td>
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<td>11.4 Pointer Safety</td>
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<td></td>
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<tr>
<td>10</td>
<td>C.Faq</td>
<td>Question 19.23</td>
<td>0.29</td>
<td></td>
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Social Search in Knowledge Sea (University of Pittsburgh)

Annotation color indicates popularity
Note indicates user comments
Problems with resource
Positively evaluated Resource
Collaborative Recommendation

This technology allows us to recommend content proactively based on ratings and work of past users.

Recommended Content in Personalized TV

Recommended Content in ENSEMBLE
Current State

- Implemented
  - Group modeling framework (CUMULATE)
  - Tracking of browsing/problem solving
  - Group-level Social Navigation in one collection

- Work in Progress
  - Tracking comments, ratings, annotations, tags
  - Social search
  - Recommendations
Rewards
or, “How to architect the right carrot…”

Dan Garcia
UC Berkeley

IF YOU BUILD IT...

They will come…
(and return again and again, forming an active, thriving community)
Challenge: 90-9-1 principle

- 90% of users are “audience”, or lurkers
  - They tend to read, observe, don’t actively contribute
- 9% of users are “editors”
  - Sometimes modifying content, rarely from scratch
- 1% of users are “creators”
  - Driving large amounts of social group’s activity
- Not representative!
- $64k question
  - What can we do about this?

"Participation Inequality"

Source: www.90-9-1.com
How to Overcome it…

- Make it easier to contribute
  - Clicking stars for a rating vs. writing natural language review

- Promote quality contributions
  - Reputation rankings

- Reward participants
  - Examples follow…

Source: www.useit.com/alertbox/participation_inequality.html

No postings from 90% of users

90% of postings from 1% of users
Example: planetmath.org

PlanetMath.org

Math for the people, by the people.

Welcome!

PlanetMath is a virtual community which aims to help make mathematical knowledge more accessible. PlanetMath's content is created collaboratively: the main feature is the mathematics encyclopedia with entries written and reviewed by members. The entries are contributed under the terms of the Creative Commons BY/Share-Alike License in order to preserve the rights of authors, readers and other content creators in a sensible way.

PlanetMath entries are written in LaTeX, the lingua franca of the worldwide mathematics community. All of the entries are automatically cross-referenced with each other, and the entire corpus is kept updated in real-time.

In addition to the mathematics encyclopedia, there are books, expositions, papers, and forums. You also might want to check out encyclopedia requests if you'd like to see something we don't have. We also have the encyclopedia available in offline-browsable snapshot form and in book form. Also see PlanetMath-exclusive feature articles and topics.

Top starting points: PlanetMath Overview - High School Mathematics - Calculus - Statistics - Real Numbers - (more)

Accounts are free and required to do anything other than browse, so sign up! It only takes a minute. For more information, see the FAQ, other documentation, PlanetMath mailing lists and other public fora, or "the PlanetMath thesis".

Also visit: PlanetPhysics, PlanetComputing. And please don't forget to Help Support PlanetMath!

*Coming soon. Shameless plugs: PlanetMath runs Noosphere. We recommend viewing this site with Mozilla Firefox and derivatives.

Latest Messages

Oct 6 02:39 - Re: Subspaces by azdbacks4234
Example: stackoverflow.com (1)

### Badges

<table>
<thead>
<tr>
<th>Badge</th>
<th>Count</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Autobiographer</td>
<td>17843</td>
<td>Completed all user profile fields</td>
</tr>
<tr>
<td>Beta</td>
<td>2617</td>
<td>Actively participated in the Stack Overflow private beta</td>
</tr>
<tr>
<td>Citizen Patrol</td>
<td>3697</td>
<td>First flagged post</td>
</tr>
<tr>
<td>Civic Duty</td>
<td>2721</td>
<td>Voted 300 times</td>
</tr>
<tr>
<td>Cleanup</td>
<td>2519</td>
<td>First rollback</td>
</tr>
<tr>
<td>Commentator</td>
<td>16307</td>
<td>Left 10 comments</td>
</tr>
<tr>
<td>Critic</td>
<td>16249</td>
<td>First down vote</td>
</tr>
<tr>
<td>Disciplined</td>
<td>1080</td>
<td>Deleted own post with 3 or more upvotes</td>
</tr>
<tr>
<td>Editor</td>
<td>35008</td>
<td>First edit</td>
</tr>
<tr>
<td>Enlightened</td>
<td>6322</td>
<td>First answer was accepted with at least 10 up votes</td>
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<tr>
<td>woot!</td>
<td>3498</td>
<td>Visited the site each day for 30 days</td>
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<tr>
<td>Famous Question</td>
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<td>Asked a question with 10,000 views</td>
</tr>
<tr>
<td>Fanatic</td>
<td>220</td>
<td>Visited the site each day for 100 days</td>
</tr>
</tbody>
</table>

### Legend

- **Gold Badge**
  - Gold Badges are rare. You’ll have to not only participate but be skilled and knowledgeable to earn these. They’re something of an accomplishment!

- **Silver Badge**
  - Silver badges are earned for longer term goals. Silver badges are uncommon, but definitely attainable if you’re interested enough.

- **Bronze Badge**
  - Bronze badges are earned for basic use of the Stack Overflow site; they are relatively easy to earn.
Building a Rewards System

- **Top N users**
  + Easy to see who is the top earner, recent top user
  - Hard to boil down the categories into a single #

- **Badges**
  + Allows for lots of topics, gold / silver / bronze clustering allows easy categorization
    - Xbox, runescape, WoW achievements, Spore similar
    - What would be appropriate badges (open question)
      …for both curators and users

- **We have to fight gamers of the system**
  - Rewards “moderators” can monitor health
Ensemble Rewards Demo

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www.computingportal.org/site/node/264
LOIS DELCAMBRE

CS1 Community Site
The CS1 Community Site

- There is much debate about how to teach CS1 – the first computer science course.

- Site allows user to post views and opinions.

- Site has initial content:
  - Scott Fletcher - taught high school computer science teacher for 6 years
  - Lois Delcambre – offered a new, pilot class
CS1 Content Types

- Express your views and opinions about:
  - Textbook Post
  - Software/Other Resources
  - Language Post
  - Syllabus
  - Teaching Strategy

- Plus a generic forum for suggestions/feedback
Categories and terms for CS1

**Terms**

- **Target Audiences** (72)
  - CS Majors (16)
  - CS0 (1)
  - K-12 (41)
    - Elementary Students (4)
    - High School Students (29)
      - AP Computer Science (11)
    - Middle School Students (5)
  - Non-CS Majors (12)
  - Introduction to Programming (2)

- **Curriculum Categories** (18)
  - Algorithms-First (2)
  - Breadth-First (1)
  - Functional-First (2)
  - Games-First (1)
  - Imperative-First (5)
  - Multimedia Programming (1)
  - Objects-First (4)
  - Visual/Drag-n-Drop Programming (2)
Sample Content: a Language Post

Reasons for Choosing Python

- Original designed for education
- Simple syntax (no semicolons or curly braces)
- Forced Indentation
  - Students learn a programming style that is easy to read
- Can be used to write scripts as well as large projects
- Python is a multi-paradigm language (scripting, object-oriented, and functional)
- Comes with a simple development environment (which includes an interpreter)
- Tons of documentation and tutorials online
- It's open-source and it's free
CS1 – the first in a family …

- Similar sites can be created for:
  - the first database course,
  - the compilers course,
  - …

- Some of the CS1 infrastructure can be used; some new infrastructure can be created.

- A “clone” button can be implemented.
Fine-grained Pieces of Digital Content

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WRAP UP, QUESTIONS AND DISCUSSION
Ensemble: Computing Community Center

- **Our goal**
  - To support joint work, a strengthened sense of community among all computing educators
  - To provide resources, tools, and meeting places

- **Our tool: Drupal**
  - We started Spring 2009 and have learned a lot, though there is much more to come.

- **Efforts**
  - Develop our site and support mechanisms
  - Spread the word
Thank you for coming!!

Open for Questions And Discussion

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