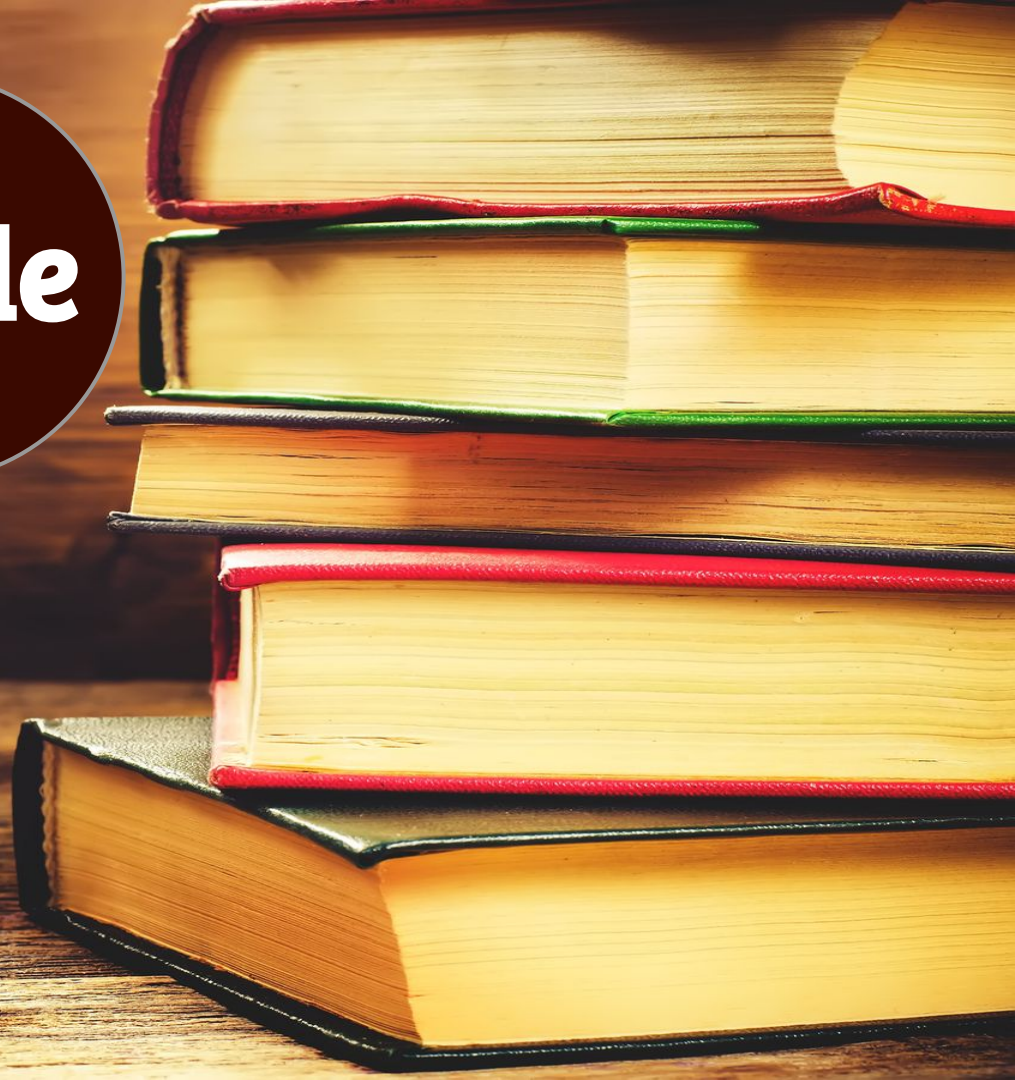


Reading Circle



Problem Statement

- ReadingCircle is a web service our whole class uses to read the course material
- Most people would agree it is more efficient and easy to use than a clunky stack of books
- Useful that you can access anywhere with an internet connection
- Not perfect though! Could be improved...
- Non-functional “Peer Comparison” and “My Progress” tabs
- Make reading and completing curriculum a more social experience?



Parties Involved



CLIENT:

- Professor Peter Brusilovsky
- Large investment in web service
- Functionality will directly impact the absorption of concepts in the course
- Success = Efficient learning/reading
- Issues = Trouble with reading and accessing course material



USER:

- Students enrolled in course
- To be successful in the class, you must keep up with the assigned readings
- Multiple sources and textbooks are aggregated for ease of access
- The easier it is to read material, the more likely a student is to complete the assigned passages

User Persona

Age: Could be any age, but majority will be younger graduate students in the iSchool

Education/Training: Assuming undergraduate degree was obtained. Indicates academically inclined users familiar with web services.

Demographics: Variety of backgrounds. Could be international or non-English speaking.

Goal: To efficiently access course reading material, keep track of process, and compare to peers

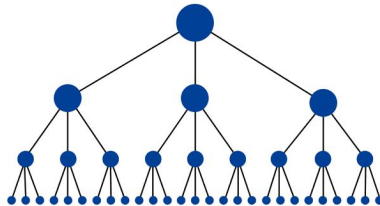
Example Quote: “I just want an easy to use web service that makes reading the course material efficient, social, and informational”



Hierarchical Task Analysis

View Your Reading Progress:

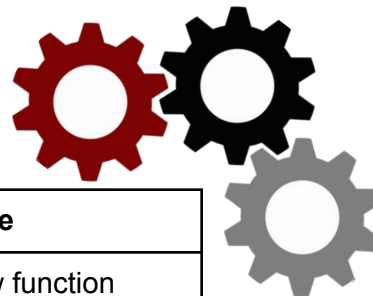
1. Access “Reading Circle”
 - a. Go to course site
 - b. Enter “Knowledge Tree” portal
 - i. Enter login information
 - ii. Select “ISD IS 2470 Spring 2016” and hit submit
 - c. Click on “Reading Circle” link
2. View your progress
 - a. Click on “My Progress” tab
 - b. Select which lecture you want to view results from
 - c. Browse through report of your progress
3. Use appraisal of your progress to guide future study



Compare Your Reading Progress To Other Students:

1. Access “Reading Circle”
 - a. Go to course site
 - b. Enter “Knowledge Tree” portal
 - i. Enter login information
 - ii. Select “ISD IS 2470 Spring 2016” and hit submit
 - c. Click on “Reading Circle” link
2. Compare your progress with others
 - a. Click on “Peer Comparison” tab
 - b. Select which lecture you want to view results from
 - c. Browse through report of your progress compared to others
3. View statistics on overall class progress
 - a. Asses the average score for the class on various exercises, and compare your scores to the mean
4. Use appraisal of other’s progress to guide future study

Functionality



Code	Name	Type
R1	The system should be able to compare questions and reading among all the other students (eg. individual students vs. entire class)	New function
R2	To make questions more visible	Improvement
R3	Student can provide feedback	New function
R4	To generate a new session ID every time user logs in	Improvement
R5	To cache the user information every time system request the model	Improvement
R6	To create a log to record everything user has been reading	Improvement
R7	Focus on the relationship among page, section and chapter and try to improve current design.	Improvement

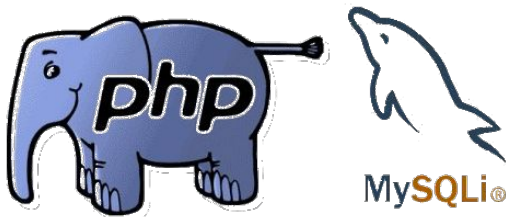
Client Meeting

- Professor Peter Brusilovsky and Julio Guerra (Original Project Leader)
- Learned much about the functionality and structure of the ReadingCircle web service
- First iteration developed three years ago by the PAWs laboratory
- Javascript and PHP, self-contained, and uses info provided by the Knowledge Tree portal
- Based on user info, selects appropriate course and literature to present
- JSON and XML files contain functions for various operations, and log progress of specific users
- Differentiation between book, chapter, and section
- Populating circle visualization widget with stored data
- Design driven by task analysis and user requirement



mySQL Database

- mySQLi - PHP included
- 13 Tables
- 42 megabytes
- Queried by web service for various functions
- Hosted on Apache server
- Forms user persona



readingcircle_dev groups	
grp	varchar(50)
courseid	int(12)

readingcircle_dev tracking	
actionid	int(18)
actiondate	datetime
uid	varchar(50)
grp	varchar(50)
domain	varchar(50)
sid	varchar(50)
actionsrc	varchar(50)
actiontype	varchar(50)
docno	varchar(50)
docsrc	varchar(50)
filename	varchar(50)
result	varchar(50)
comment	varchar(512)

readingcircle_dev precomputed_models	
modelid	int(12)
uid	varchar(50)
sid	varchar(50)
courseid	int(12)
lastaction	datetime
computedon	datetime
avg_progress	float(6,4)
progress	varchar(2048)
detailed_progress	text

readingcircle_dev doc_lecture	
doclectureid	int(10)
lectureid	int(10)
docno	varchar(255)

readingcircle_dev document	
docid	int(11)
docsrc	varchar(50)
docno	varchar(50)
title	varchar(255)
spage	smallint(8)
epage	smallint(8)
filenames	varchar(255)
fileformat	varchar(20)

readingcircle_dev questions	
idquestions	int(11)
docid	int(11)
question	varchar(1000)
answertype	varchar(45)

readingcircle_dev precomputed_models_copy	
modelid	int(12)
uid	varchar(50)
sid	varchar(50)
courseid	int(12)
lastaction	datetime
computedon	datetime
avg_progress	float(6,4)
progress	varchar(2048)
detailed_progress	text

readingcircle_dev answers	
idquestions	int(11)
answer_num	int(11)
answer_text	varchar(500)
correct	tinyint(1)

readingcircle_dev progress	
id	int(11)
date	datetime
usr	varchar(50)
grp	varchar(50)
sid	varchar(45)
bookid	varchar(50)
docno	varchar(50)
page	varchar(50)
question	tinyint(1)
top	decimal(12,4)
bottom	decimal(12,4)
time	int(11)

readingcircle_dev course	
courseid	int(10)
coursekey	varchar(20)
title	varchar(250)
domain	varchar(20)
comment	varchar(500)
legacy_kseadb	varchar(50)

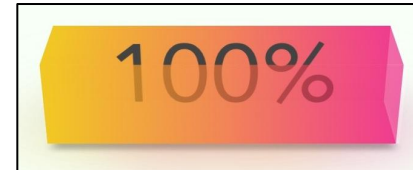
readingcircle_dev lecture	
lectureid	int(10)
courseid	varchar(10)
title	varchar(250)
objectives	varchar(2048)
comment	varchar(500)

readingcircle_dev book	
bookid	int(10)
bookkey	varchar(50)
format	varchar(50)
folder	varchar(50)
title	varchar(255)
authors	varchar(255)

readingcircle_dev submitted_answers	
id	int(11)
usr	varchar(50)
grp	varchar(50)
sid	varchar(45)
idquestions	int(11)
time	datetime
answer	varchar(100)
correct	tinyint(1)

Design Implementation

- Driven by user study, task analysis, and client meeting
- Necessities
 - Seamless integration into existing system
 - Perpetuate visual theme of application
 - Understandable and useable by anyone regardless of background
 - Use data already available from mySQL database
- Progress bars are familiar and visual
 - Can be easily juxtaposed
- Different from circle which is already used
- Use a mixture of percentages and ratios based on situation
- Multiple progress bars for granularity
 - Lecture, Book, Chapter, etc.
- Maintains visual interface



Design Process - 1

Preexisting System

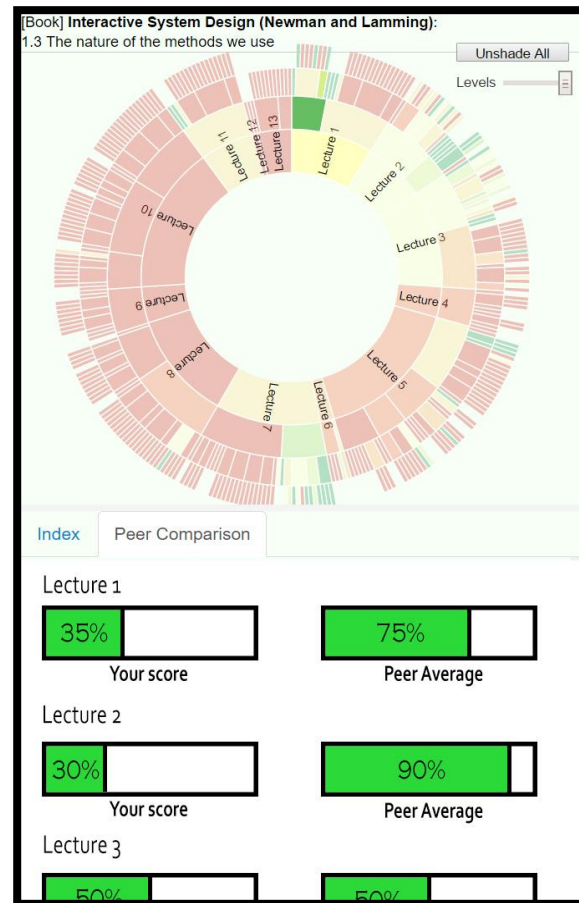
- Non-functional
- Takes up space
- Misleading



Design Process - 2

Proposed Design Prototype

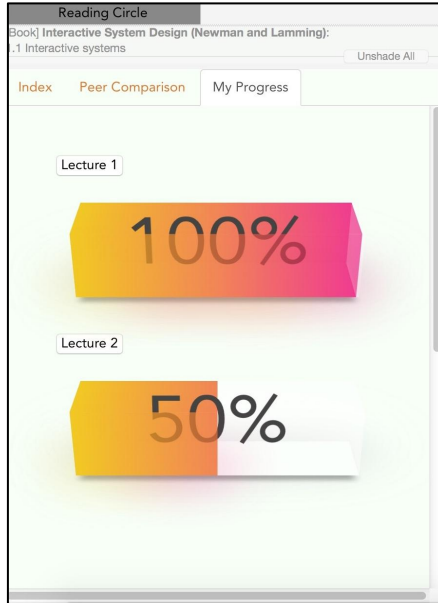
- Functional
- Perpetuates visual aspect of web service
- Provides more information about reading
- Creates a more social experience



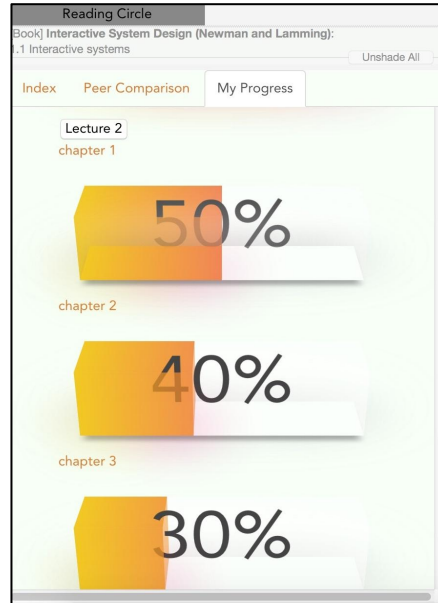
Design Process - 3

Final Implemented Functionality

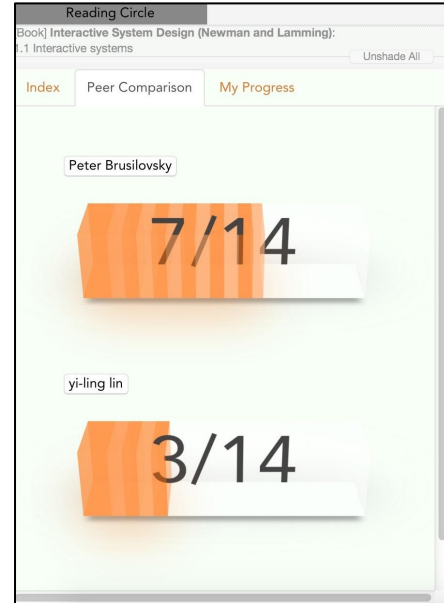
- Inserts unobtrusively into preexisting system
- Visually appealing and provides more info
- Levels of granularity
- Increases social aspect of application
- Improves on students perception of curriculum



Viewing "My Progress"

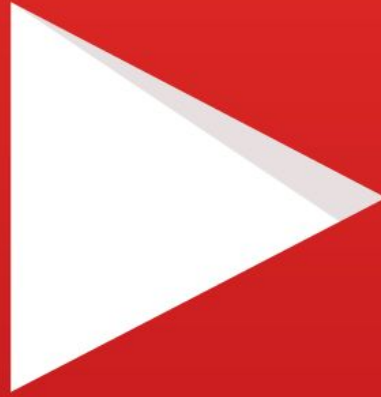


Expanded "My Progress"



Viewing "Peer Comparison"

Video Demonstration



<https://youtu.be/ayD9XrtL44g>