

Introduction and design	Philip	6 minutes
Process - Part 1	Vineeth	1 minute
Process - Part 2	Mai	1 minute
Evaluation Process	Amy	4 minutes
Evaluation Results and Conclusion	Aditya	3 minutes

University Bookstore Assistant

Generating new customers by enhancing the user onboarding experience

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System Concept Statement Iterations

The University Bookstore system, is designed to bring in more customers by improving the University Bookstore's online search functionality, onboarding experience, and in-store experience. It will increase bookstore visibility using a web-browser plugin and restore Bookstore's status as the preferred book vendor option for student purchases. The measurable improvement of the proposed features of this effort will be book sales through direct book and computer purchases and indirect purchases of Virginia Tech memorabilia and office supplies.

The enhanced system includes additional features including pro-active customer engagement, book/product ratings and previous customer comments. In comparison to the current Bookstore web search experience, the enhanced system will reduce the search time by showing the products from the Bookstore as they browse other websites like Amazon and Canvas. The design will enhance the Bookstore's onboarding experience and offer potential customers a way for product comparisons that will save time and money for students, while generating revenue and satisfied customers for the Bookstore.

Design

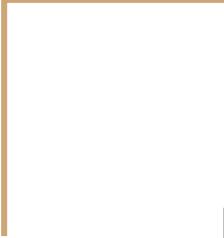
Goal: Generating new customers by enhancing the user onboarding experience

Online Users

- Bookstore Assistant
- Web browser plugin
- Increase the visibility of bookstore product, when one searches in third party sites such as Amazon or Google

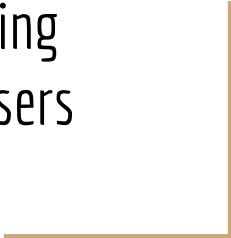
Offline Users

- Bookstore Kiosk
- DIY(do-it-yourself) design
- Enhance the buying experience



Bookstore Assistant

Enhancing the onboarding
experience for online users



GraphSpace Netflix Extensions Amazon.com: Online Shopping Aditya

Secure https://www.amazon.com/ref=nav_logo

Apps VT Emacs Classes Websites Research 19 Virginia Tech - Cale... http://localhost:80... Gmail WhatsApp Web Post to CiteULike 13 Amazing Films T... Other Bookmarks

NEW & INTERESTING FINDS ON AMAZON EXPLORE

amazon Prime

All

Prime Video | Stream movies & TV shows

Departments Prime Video Music Help Sell Gift Cards & Registry Deals Your Amazon.com Orders EN Hello, Aditya Account & Lists Cart

JUST ASK echo \$179⁹⁹

< >

Hi, Aditya Your Orders 0 recent orders Your Prime Benefit Listen to Audible Channels Try Home Services House Cleaning & More Customer Since 2015

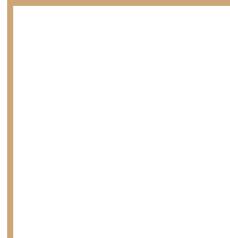
AMAZON PILOT season presented by GEICO

Inspired by your shopping trends

VICKS SAVIS Robitussin

SEARCHING ON AMAZON.COM

Robitussin



Bookstore Kiosk

Enhancing the onboarding
experience for offline users





Textbooks

Clothing

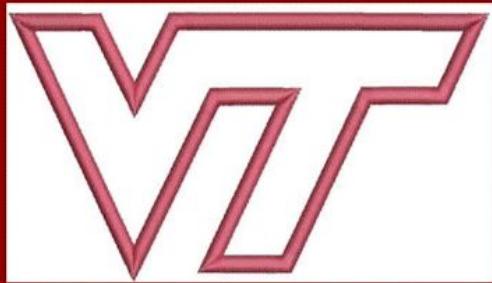
Supplies

Services



Search

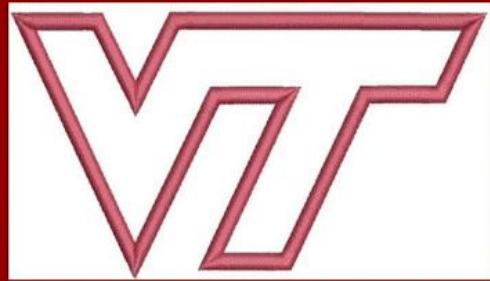
Cart



Welcome to VT Bookstore

TOUCH THE SCREEN TO BEGIN





Welcome to VT Bookstore

TOUCH THE SCREEN TO BEGIN



Pre-design Process



Contextual
Inquiry



Requirement
Extraction

Design



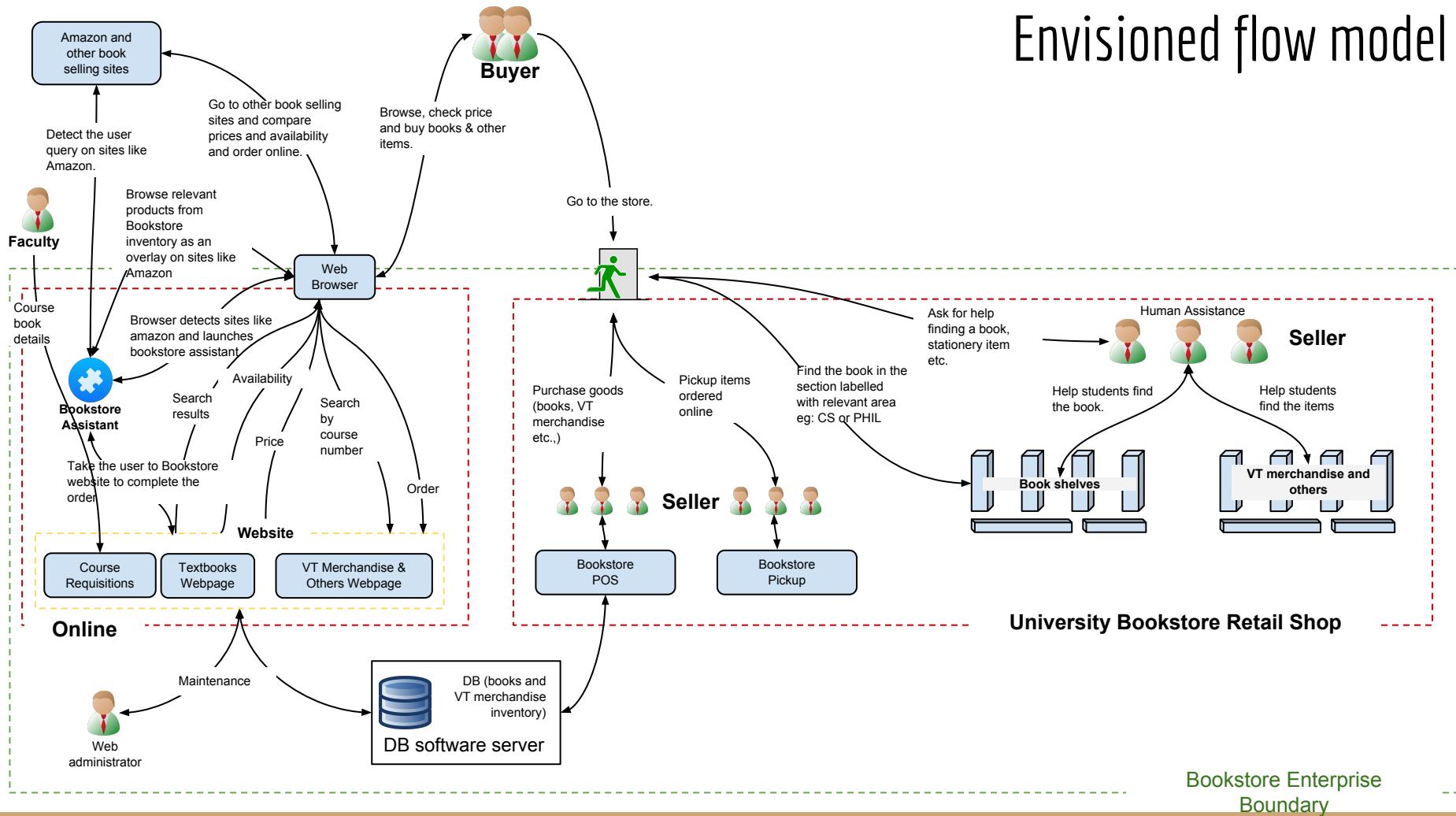
Contextual
Analysis



Design Informing
Models



Envisioned flow model





Inez Roberts

2st year College Student

*"I do not have **time** to shop around for books at the bookstore, but also do not want to **wait** for books to be shipped"*

*"Most of the time I don't even check the bookstore website because Amazon gives you the **cheapest** option."*

Design Process

Conceptual



Intermediate



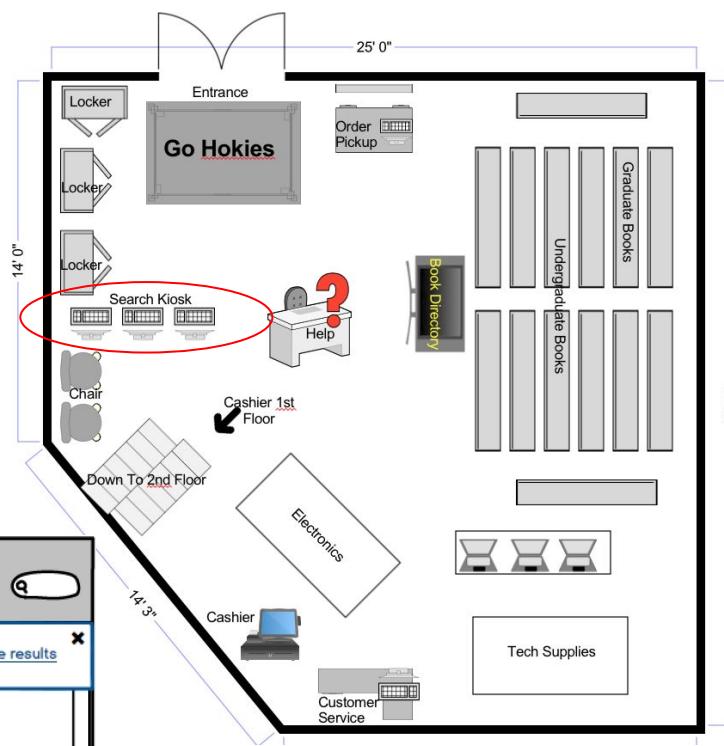
Prototype

Conceptual



Intermediate

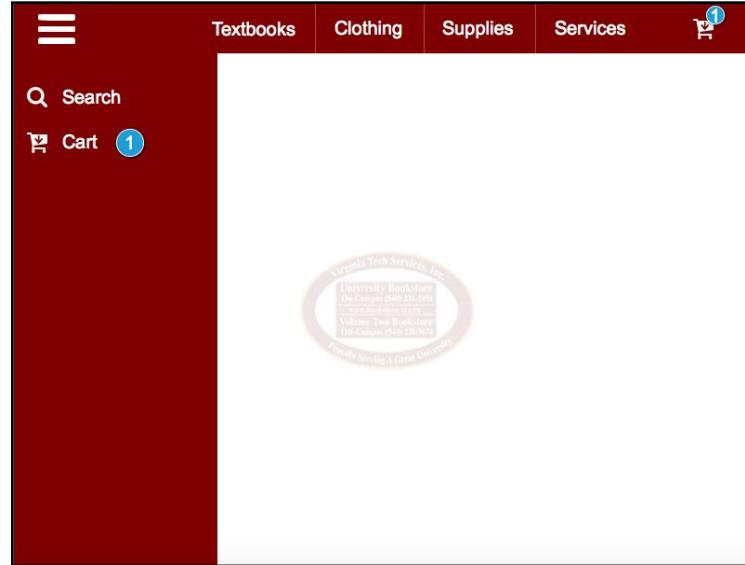
The screenshot shows a web browser window with two tabs open. The top tab is a Google search result for "the ux book". It displays a snippet from VT's website with a star rating of 4.5/5 and a price of \$57.08. Below it is an Amazon search result for "the ux book". It shows the product title "The UX Book: Process and Guidelines for Ensuring a ... - Amazon.com", the authors "Rex Hartson and Pardha Pyla", and the price information for Prime members (\$32.70 to rent, \$57.08 to buy). The bottom tab is a snippet from Amazon.com with the same product details.



Prototype



Conceptual



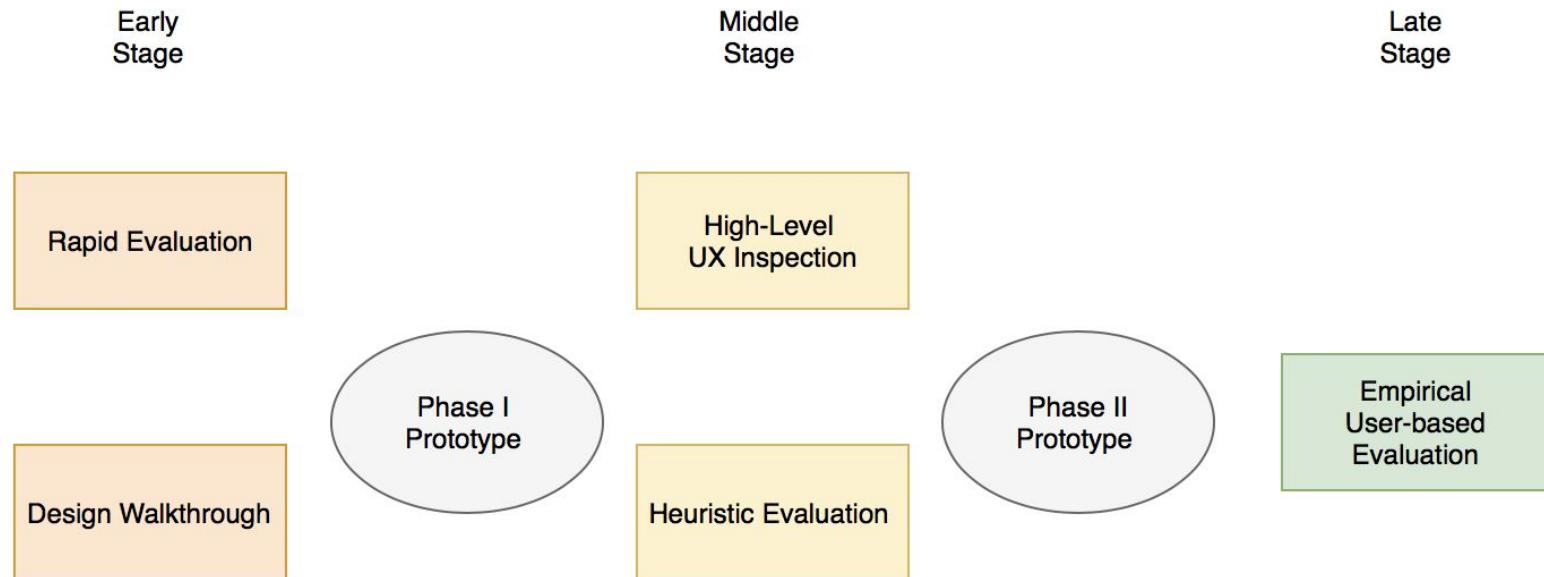
Intermediate

Prototype



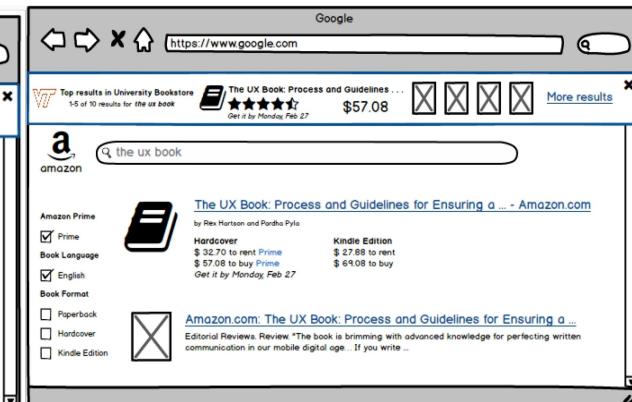
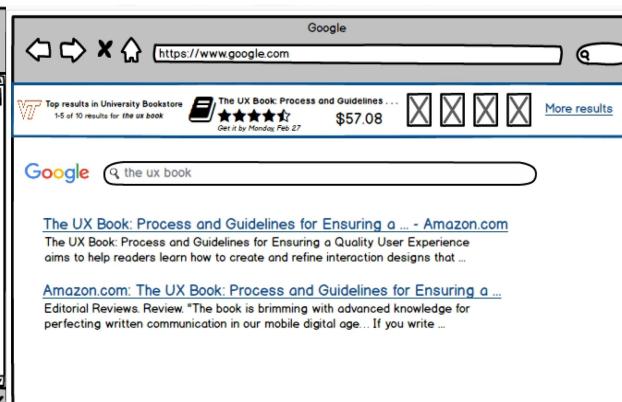
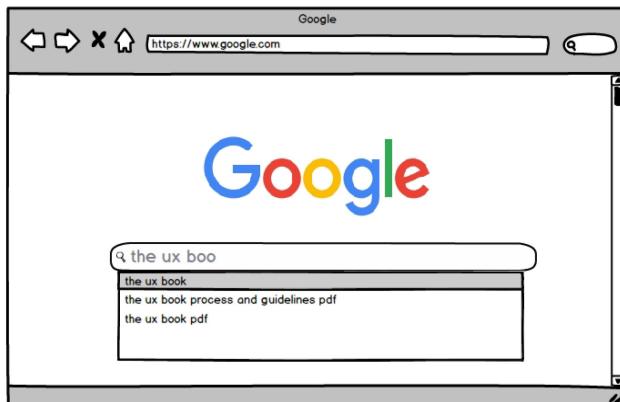
Evaluation Process

Evaluation Strategy



High Level Inspection

- CS majors developed the prototypes
- ISE/HF majors performed design inspection
- Suggestions from the inspection incorporated into prototype development



Heuristic Evaluation

- Feedback
- Control
- Consistency
- Error Prevention
- Recognition versus Recall
- Visual Appeal
- Emotional Impact

Heuristics violated or supported	Heuristics violated
	Match Between System and The Real World
Wording for delivery date is confusing. It's not clear if the product will be shipped by XXX date or the users need to pick it up by XXX date.	Name of heuristic
Results IFrame	Reason for reporting as negative or positive
High	Scope of problem:
Product delivery is an important criteria in a user's mind before buy the product. Some users may prefer shipping over pick up. Delivery method is not clear in the current interface.	Severity of problem (high/medium/low)
Change "Get it by tomorrow" to a more clear wording like "Available for pick-up today" or "Get it delivered by XXX".	Justification for severity rating
None	Suggestions to fix:
	Possible trade-offs (why fix;might not work):

Empirical Evaluation

- 4 participants
- All graduate students
- Tested 4 task sequences
- User performance measurement
 - Success Rate (0 or 1)
 - Completion time
 - # of Go Back
- Critical Incident Identification
- Think-aloud technique
- Questionnaires
 - Questionnaire for User Interface Satisfaction (QUIS)
 - System Usability Scale (SUS)

Question Category	Continuum	Average Rating
Overall	Terrible -> Wonderful	6.5
	Difficult -> Easy	7.5
	Frustrating -> Satisfying	6.25
	Inadequate power -> Adequate power	5.5
	Dull -> Stimulating	5.75
	Rigid -> Flexible	5
Characters on the computer screen	Hard to read -> Easy to read	7.5
Highlighting on the screen simplifies task	Not at all -> Very much	6.25
Sequence of screens	Confusing -> Very clear	7.25
Organization of Information on screen	Confusing -> Very clear	6.5
Learning to operate the system	Difficult -> Easy	8.25
Exploring new features by trial and error	Difficult -> Easy	8.5
Tasks can be performed in a straightforward manner	Never -> Always	7.25
Remembering navigation/ Use of commands	Difficult -> Easy	8.25
System Speed	Slow -> Fast enough	8.75
System Reliability	Unreliable -> Reliable	7
Correcting your mistakes	Difficult -> Easy	7
Experienced and inexperienced users' needs are taken into consideration	Never -> Always	6
Average SUS score		75

Think Aloud Protocol

- Book search results page does not tell the author
- Lacking critical details about the book to assure that it is the right book
- Didn't like where the title of the book is located at; appears to be connected to the cover image and hard to spot
- Hard to see the details provided
- Would like to see the available delivery date

Quality Metrics

Success Rate	1
Timing (Min)	2
# of Go Back	0
Task Level Satisfaction	Satisfied
<i>navigation use</i>	Easy

*(1- Success 0- No Success)

Evaluation Results

UX Problems

The screenshot shows a search results page for men's sweatshirts on a website. The results include:

- Top results on University Bookstore**
1 to 3 of 597 for [mens sweatshirts](#)
- Women's Virginia Tec...** ☆☆☆☆☆ \$46.75
Get it by tomorrow.
- Women's Black Full-Zi...** ☆☆☆☆☆ \$51.00
Get it by tomorrow.
- POLO Ralph Lauren - ...** ☆☆☆☆☆ \$47.50
Get it by tomorrow.
- Under Armour Carbon...** ☆☆☆☆☆ \$46.75
Get it by tomorrow.

A red box highlights the "Get it by tomorrow." text under the first item.

Problem

- Wording for delivery date is confusing.
- It's not clear if the product will be shipped by XXX date or the users need to pick it up by XXX date.
- Caused confusion and hence blocked the user from finishing the task. **High Importance !!**

Solution

- Clear wording like “Available for pick-up today” or “Get it delivered by XXX”.

UX Problems

Top results on University Bookstore
1 to 3 of 597 for mens sweatshirts

Women's Virginia Tec...
☆☆☆☆☆ \$ 46.75
Get it by tomorrow.

Women's Black Full-Zi...
☆☆☆☆☆ \$ 51.00
Get it by tomorrow.

POLO Ralph Lauren - ...
☆☆☆☆☆ \$ 47.50
Get it by tomorrow.

Under Armour Carbon...
☆☆☆☆☆ \$ 46.75
Get it by tomorrow.

More results X

Problem

- There is no way to scroll more results in the same frame.
- User needs to click on “More results” link to view more options.
- User can complete task, but with some difficulty (extra effort). **Medium Importance !!**

Solution

- Clear wording like “Available for pick-up today” or “Get it delivered by XXX”.

UX Problems

Top results on University Bookstore
1 to 3 of 597 for mens sweatshirts

Women's Virginia Tec...
☆☆☆☆☆ \$46.75
Get it by tomorrow.

Women's Black Full-Zi...
☆☆☆☆☆ \$51.00
Get it by tomorrow.

POLO Ralph Lauren - ...
☆☆☆☆☆ \$47.50
Get it by tomorrow.

Under Armour Carbon...
☆☆☆☆☆ \$46.75
Get it by tomorrow.

More results X

Problem

- Instructions for use of the bookstore assistant is not easily available.
- Little impact on task performance. **Low Importance !!**

Solution

- Add a “?” link to direct users to the documentation if they need any help.

UX Problems

Top results on University Bookstore
1 to 3 of 597 for mens sweatshirts

Help

More results X

Image	Name	Rating	Price	Action
	Women's Virginia Tec...	☆☆☆☆☆	\$ 46.75	Get it by tomorrow.
	Women's Black Full-Zi...	☆☆☆☆☆	\$ 51.00	Get it by tomorrow.
	POLO Ralph Lauren - ...	☆☆☆☆☆	\$ 47.50	Get it by tomorrow.
	Under Armour Carbon...	☆☆☆☆☆	\$ 46.75	Get it by tomorrow.

Problem

- Instructions for use of the bookstore assistant is not easily available.
- Little impact on task performance. **Low Importance !!**

Solution

- Add a “Help” link to direct users to the documentation if they need any help.

UX Problems

High
Importance !!

The image shows a mobile application interface with a red header bar containing a back arrow, a home icon, and category tabs: Textbooks, Clothing, Supplies, and Services.

On the left side of the main content area, there is a legend:

- A white square with a black border and a gray 'X' inside, labeled "Available" in green text.
- A gray square with a black 'X' inside, labeled "Not Available" in red text.

Below the legend, a message in blue text reads: "No date & time information available".

The main content area displays a 4x4 grid of items. Each item is represented by a small square icon. The icons are arranged as follows:

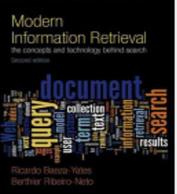
Row 1	Column 1	Column 2	Column 3	Column 4
Available	Not Available	Not Available	Not Available	Available
Not Available	Available	Available	Not Available	Not Available
Not Available	Available	Not Available	Not Available	Not Available
Not Available				

At the bottom of the screen is a green button with the text "Add to Cart!"

UX Problems

VT Bookstore

Search Box



Modern Information Retrieval
the concepts and technology behind search
Ricardo Baeza-Yates
Berthier Ribeiro-Neto

document search query results

Location: Third Floor
Aisle 7
Third Shelf
Price 44\$
New

Quantity

BUY NOW ADD TO SHOPPING

Author Info
ISBN
Edition

Is this book
in stock ?

< BACK

VT Bookstore

Order Review

Item	Quantity	price (\$)	Tax (\$)	Total (\$)
Modern Information Retrieval	7	44	10.5	318.5

PLACE ORDER

Delivery Method
Shipping Cost

< BACK

Cost Importance Analysis

Problem	Imp	Solutions	Cost	Prio. ratio	Prio Rank	Cuml Cost	Resolution
Wording for delivery date is confusing. It's not clear if the product will be shipped by XXX date or the users need to pick it up by XXX date	M	Change "Get it by tomorrow" to a more clear wording like "Available for pick-up today" or "Get it delivered by XXX".	1	M	1	1	Fix in this version
Sometimes the results shown by Bookstore assistant take some time to load. This leads to a blank white box on top of Google/Amazon search results.	M	Show an animation for loading or text which tells the users that Bookstore is searching for their query on Bookstore website.	1	M	2	2	Fix in this version
Wants to view updated ratings, instead of blank stars	M	Allow users to rate products and see average ratings by other users.	8	M	3	10	Fix in this version
The date of the trip should be emphasized (like the hotel booking page)	3	Increase font size of trip date.	1	3000	4	11	Fix in this version
The term "Home Ride" is confusing	3	Change "Home Ride" to "Trip to Blacksburg"	1	3000	5	12	Fix in this version
For the discounted prices, the savings should be highlighted	2	Highlight savings in bigger font	1	2000	6	13	Fix in this version
Should tell if it is One Way or Round trip	4	Highlight if the trip is one way or round trip on the top of the page.	2	2000	7	15	Fix in this version
Would like to see the search box upfront (wanted to type in Mom)	4	Add the search box to home page.	2	2000	8	17	Fix in this version
Book search results page does not tell the author	3	Add author details below book name.	2	1500	9	19	Fix in this version
Sort section does not narrow the search	4	Fix the sorting functionality.	3	1333	10	22	Fix in this version
Did not tell whether the book is available or not	4	Show the information about books availability.	3	1333	11	25	Fix in this version

“NEW” sign for new arrivals would grab more attention	2	Sort items by arrival and add a new sign for new arrivals.	2	1000	12	27	Fix in this version
Lacking critical details about the book to assure that it is the right book	2	Add details like ISBN number and edition number to the item listing.	2	1000	13	29	Fix in this version
When clicked on “Search Criteria” drop down list, the participant expected to see the department of the books (e.g. engineering, biology, etc)	2	Add the option to filter books by department	3	667	14	32	Fix in this version
Line of Affordability (32 person-hours - 4 work days)							
Would like to see delivery method and the cost for shipping on the order review page BEFORE checkout	3	Redesign the order task flow. Users should be able to see the current order on all pages. This will solve both issues.	5	600	15	37	until next version
Help and Documentation	3	Create a help page.	5	600	16	42	Wait until next version
Need more payment delivery options	2	Implement more payment methods	8	250	17	50	Wait until next version

Lessons and Design Insights

- Early validation using the wireframes.
- High fidelity prototype helped reveal emotional impact.
 - ◆ Users felt that the Bookstore assistant was “spammy”.
- Waste time while trying to perfect the prototype.
- Transference of bad design from legacy system.
 - ◆ Confusing wording like “Home Ride”.

Important Links

- Install Bookstore Assistant
 - ◆ <https://github.com/adbharadwaj/bookstore-assistant/>
- Bookstore Assistant Portfolio
- Presentation
 - ◆

