

Project 9

Team 21: CS 352, Oregon State University

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1. PROBLEM STATEMENT

The eCook application is a library of digitized popular cookbooks where a user can browse cookbooks, borrow a cookbook for their personal bookshelf, as well as search for a recipe across all cookbooks in the library.

The access to online cookbooks provided by eCook solves three issues: reclaims valuable kitchen space currently taken up by physical cookbooks that aren't used on a regular basis; gives the user a trusted source for a wide variety of recipes; and allows the user to interact with their friends by sharing their favorite recipes.

The application targets users that are familiar with using recipes from cookbooks as well as online sources and also users that like to cook but aren't used to using recipes.

2. MATERIALS

The myBalsamiq storyboard of our final high-fidelity prototype is included with this document in Appendix A. This storyboard presents all of the screens of the application and how they connect together. In addition, the final clickable myBalsamiq prototype is included as a PDF in Appendix B.

3. FEEDBACK-BASED CHANGES

We made a number of substantive changes to the application based on feedback from our peers and the TA. The comments point out issues that seem so obvious in hindsight; this really underscores the need to constantly iterate through the prototype / evaluate.

Most everyone loved the home page, but there was some confusion about what functionality was represented by the icons. In response, we rearranged the icons and added meaningful descriptions of the links to entice users to explore the application.

Our TA noted that the Home page greeting "Welcome Back" may confuse first-time visitors. We changed the greeting to be more personalized "Welcome Back to eCook, Sonja" since the application is running in the context of a specific user. Our intent is to have login/register/remember me/cookies in the final product but showing that boilerplate would detract from the focus of the prototype which is to showcase the application logic and flow.

In the previous prototype, the Browse Cookbooks page links to a cookbook that opens on the second page. This was initially designed for the convenience of the user in mind. However, this unsettled one user in the most recent iteration of comments on the prototype. The team since corrected this in the prototype so now the cookbook opens to page one. By now linking to the very first page, this eliminates any confusion to the user.

The Search page has a Top 10 recipes function to allow the user to view a selection of recipes based on their prior search history and their preferences. The selection criteria were listed on the Search

Results page, which was confusing to some users. To eliminate this confusion, the team moved the criteria heading to the Search page.

A few users were also mystified by the navigation and menu options, especially in regards to the cookbooks. This was of much concern to the team because this is such a critical aspect of the usability of the eCook application. In response we rearranged the bottom navigation buttons so that there is a separate set for the buttons that apply to the cookbook. In addition, the team created a new set of buttons that serve as "Quick Links." To take things one step further, the team also added breadcrumbs in the page header (for example: My Library >> My Bookshelf: Vegan).

The feedback that our team received since the last design stage has been invaluable in the developmental process. As noted earlier, the iteration of the prototype and evaluation steps is crucial to developing an easy to use and easy to learn interface. Often getting an outsiders' perspective is the best way to improve usability. This just goes to show the importance of involving users in the development process. In regards to this stage of the eCook application, the user feedback on home page, cookbook page, search page and the navigation options, aided the team into perfecting eCook's usability along with improving user experience with the application.

4. DESIGN JUSTIFICATIONS

Throughout the developmental process of our eCook prototype, our team underwent numerous design decisions to perfect the user interface of the application. This section discusses the justification of each of the design decisions as they have ended up in this prototype. The majority of the design justifications are based on the target population of users for the application as well as being based on the user research and evaluation stage of the developmental process thus far. These justifications also follow some general usability principles to perfect our prototype into as user-friendly as possible.

The color scheme was chosen due to the team's analytical work in addition to using the guidelines from the class lecture entitled "Perception". This was to maximize contrast between the background and important features, such as the "Quick Links" buttons. The color palette was also chosen for its visual appeal. This color scheme was selected from among several palettes by a vote among all team members. The lo-fi prototype included several buttons that were common to all pages, including the Help, and Home buttons, but it was revealed during the evaluation phase that some "Quick Links" buttons were needed to link the user to any of the major sections from anywhere in the app. This way, the user does not have to navigate to the home button to get to the other sections.

In our early concept design of our app, a help screen was not included. However, throughout the research and evaluation state

of the developmental process our team discussed the importance of adding this screen to the app. Simply based on general usability principles alone, including a help screen eliminates any confusion the user might experience when navigating the app. Our app is designed to be simple, easy to learn and easy to use. Through the team's analytical work, it was discussed that including the additional help screen takes the app's ease of use to the next level by completely explaining to the user how to use the app. On this help screen, there are detailed instructions on how to perform the main functions of the app (browsing, searching, sharing, adding to library). There is also a "frequently ask questions" portion on this help screen which gives the user additional information which may not have been included earlier in the help screen (instructions on how to perform the apps functions). This help screen is accessible from every one of the apps other screens so the user is able to quickly and easily access this help screen if extra guidance is ever needed. This help screen combined with the overall simplicity of the app makes this app very easy to learn how to use.

Including a "print" option in the app has been an idea that began in the early developmental stages and has remained throughout this process. Giving the users the option to print a recipe bridges the gap between the users who prefer physical cookbooks and those who prefer virtual cookbooks. Users who prefer physical cookbooks can now benefit from the "virtual cookbook world" by finding a cookbook recipe quickly over the internet and still have to option to print this recipe to physically have the recipe after it is printed. Based on our team's empirical work through the research and evaluation stage in this process, it was found that a big reason why people prefer physical cookbooks over virtual cookbooks is because they can write notes and comments on a physical recipe which they could otherwise not do with a virtual cookbook. The specific print screen in our app prototype gives the user many different options with selecting a specific printer to print from. Seeing that this is an app and not just a website that is accessible with a PC, the user has many options of connecting to a printer such as through Wi-Fi and Bluetooth.

Our users mostly consist of adults. Nearly 75% of all adults are on social media and have the ability to share content over a variety of networks. This ability is now expected from most apps. Research gathered from the empirical work and interviews also shows that some cooks get new recipes from friends and family. This share function allows users to both send and receive recipes. It also allows to share recipes or entire cookbooks to multiple people at once.

Looking at the general usability principles, it is important to always communicate to the user what is happening and/or what just happened in an interface. This communication between the interface and the user is important in letting the user understand what actions has just been conducted through the app. The share confirmation screen addresses this usability principle by informing the user that a cookbook has just been shared to another person. Through some of the team's analytical work process, it was decided that without this extra confirmation screen, there may be some uncertainty with the user on whether or not a cookbook was actually shared with a simple click of an icon. This share confirmation screen will pop up to the user after the user clicks to share a cookbook recipe to confirm to the user that the recipe was indeed shared to another person.

It was the group's intention to include a feature that allows the users to save selected cookbooks to view at a later time (though this option was not included in the lo-fi prototype). Interestingly, the subject for our empirical evaluation expressed, without

prompting, that she would need to be able to save recipes or cookbooks that she liked, verifying the inclusion of this feature in the app. The user, while viewing the selected cookbook, simply clicks on the "Save" icon, which brings up the dialog window to "Save to My Library."

Similar to the "share confirmation screen" the "add to my library screen" is another page in the app that communicates to the user what action has just occurred. The team concluded on the importance of including these extra screens in the process of our analytical work and numerous discussions. If the user finds a cookbook and wishes to add the cookbook to the saved library of cookbooks, simply clicking on an "add to library" icon doesn't offer much reassurance of whether or not the cookbook was actually added to the saved library. By having a whole new page pop up to the user which displays text that the cookbook was indeed added to the saved library, the user is fully aware of the new add to the library actually took place. In addition, if the user accidentally clicked on the icon to add a cookbook to the saved library, without the "add to my library screen" the user would not realize that the cookbook was added until they actually went into the "my library" area of the app. At this point the user will be confused as to why there is a cookbook in the saved library. In this scenario, including the "add to my library screen" confirms to the user right away that a cookbook was just added and if the user did not intend to add the cookbook they can remove the cookbook immediately to correct the unintended add.

It was always the group's intention to include a screen/window that allows the user to save selected cookbooks to their personal library (though this particular screen was not included in the evaluation). In this version of the prototype, the user, while viewing a selected cookbook, can click on the "Save" button, which will bring up the dialog window that allows the user to select which Bookshelf in which he/she would like to save the selected cookbook.

5. DESIGN PRINCIPLES

In addition to using empirical and analytical data to drive the design decisions, we also adhered to the five design principles as we developed the UI. The following sections highlight examples from the application for each of the principles.

5.1 Visibility of User's Actions

This principle refers to UI features that make it clear to the user what actions they can do. Each page has a navigation bar of icons along the bottom and top left. The icons on the bottom are used to navigate within the site (e.g., Back, Home, Search, etc.). The icons at the top left are actions that can be performed on a cookbook or recipe (Print, Save, and Share).

5.2 Feedback

Feedback is letting the user know in a timely fashion what action is being performed. As mentioned earlier in this document, the application provides confirmation screens in order to let the user know the status of an action. We intend to make sure feedback is supplied as quickly as possible in response to the user actions as we move forward with the application development.

5.3 Constraints

We employed constraints make certain actions impossible. The top left icons, representing Print, Save, and Share, are disabled when the action is inappropriate. For example, all three icons are disabled on the Search page and all three are enabled on the Search Results page for the individual recipe.

Another example, which is also an example of outstanding attention to detail, is that the Save icon is disabled when a user navigates to a page for recipe from their Bookshelf (since it's already saved).

5.4 Internal Consistency

Internal consistency ensures that groups of similar actions are done with the same gestures and menu icons. Particular care was made to ensure the icons used in the bottom navigation were the same color and same design as the icons used on the Home page.

The Home page icons could be classified as both navigation graphics and content graphics, since the icons are so evocative of their function. In addition, by providing meaningful descriptions

on the Home page for each icon, we ensure a user can easily learn to associate the function with the icon.

5.5 Affordance

Affordance is the attribute that makes it clear to the user what actions can be performed. This principle is exemplified in the Browse Cookbooks section. The cookbook library is presented to the user as a carousel of high-resolution cover images. It's readily apparent that the user can swipe or scroll through the covers. Once a cookbook is selected, the user is transported to the first page of the cookbook. The cookbook page has large navigation arrows on the right and left side clearly indicating turning to the next or previous page. The first page left arrow is disabled, as is the last page right arrow.