# Usability Evaluation Report (Based on Schneiderman's 8 Golden Rules)

**1.    Strive for consistency**

Good**:** The design is mostly consistent. Navigation bar is consistently on top and side panel to outline and index page is consistently on the left. Buttons executing similar functionalities have the same icon.

Suggestion: Making bottom tab bar consistent on page B, C and D. Given the size of the tablet (13 inches diagonally), there is no harm in doing so as it adds to consistency and also gives users better control over the e-book reader as it allows them to read, looking through their shelf and catalogue all on one screen

**2.    Cater to universal usability**

Good**:** Easy to use. Daniel has designed a simplistic way of navigating the e-book reader by using appropriate labels (e.g. "TOPICS" and "COLLECTIONS" to filter by topics and collection respectively) and designing buttons sensibly (e.g. "+" to indicate addition of books from catalogue to shelf and "x" to indicate removal).

Good**:** Catered to advanced users. Advanced users who need greater precision in sorting and searching for desired book, shortcuts to notetaking, and sieving information from multiple pages and tabs are able to do so.

Suggestion: Increase responsiveness. E-book reader seems to only be able to be used in landscape mode, which may frustrate users who wish to use it in portrait mode. Enable features to view it on any side.

Suggestion: Cater for more user groups. Add audio book functionalities and language configuration settings to allow greater usability from the visually impaired and non-English speaking users

**3.    Support internal locus of control**

Suggestion: Backing up important data. Saved notes and books on shelf should be saved into a database and be able to be restored by users should they lose possession of their tablet. This reduces anxiety since it gives users more control over the accessibility and persistence of the books they added and the notes they made.

Suggestion: Current state saved locally. State of the e-book reader (e.g. what terms are searched, which page of the reader is on) should remain consistent even after user has exited the application to prevent a-causality.

**4.    Reduce short term memory**

Good**:** Simplistic Design: E-book reader is designed in a simple and straightforward fashion with no unnecessary buttons or labels. Every other possible actions and interactions through buttons or gestures are within the 7±2 chunks of information as per Schneiderman's recommendation for every view too.

**5.    Permit easy reversal of actions**

Good**:** Removal of books are easy to undo: When book is removed from catalogue, book stays on catalogue temporarily before being removed, allowing users to easily undo their removal by clicking on the "+" button

Suggestion: Improvement to removal reversal. Reversal of book removal may slightly confuse users since users expect the book to immediately disappear to inform and provide closure to their action. Instead, we can add undo and redo icons in the navigation bar to provide an easy way to execute reversal of actions and also provide this functionality to every other action in the e-book reader, especially for the creation of notes.

**6.    Prevent errors**

To be improved: Opening duplicate chapters. When referencing technical documentation, user may open

many tabs and lose track of chapters that has been opened.  Duplicate chapters may be opened as a result which may create a cluttered tab bar and bring confusion as well as error to users.

Suggestion: Prompt warning when user is trying to open **already opened chapter** in another tab and allow user to locate the it in the tab bar; Limit amount of the tabs **from the same chapter** to be opened to 3.

### 7.    Design dialogs to yield closure

Good: Appropriate sequences of actions have beginning, middle and end. Adding of notes have beginnings (clicking on "save"), middles (adding notes), and ends (clicking "done"). Skimming through book via dragging it has previews of the page it is at, from the beginning till the desired ending page.

To be improved: Improvement of closure for sequences of actions. Ending is lacking for the adding or removal of books from shelf to catalogue. Ending can also be improved for the adding or removal of notes.

Suggestion: Usage of visuals and animations to improve closure. Animations can be added to visualize the entire process of adding or removing books or notes as seen in the example on the right ->
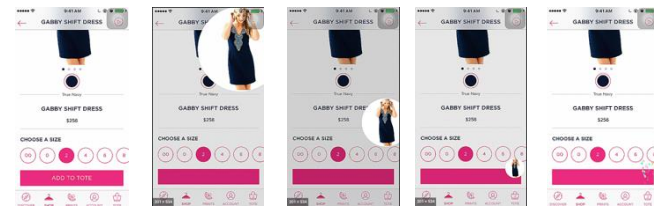


### 8.    Offer informative feedback

Good: Modest feedback in most actions. Buttons/tabs highlighted/underlined after clicking. Changing of "x" to "+" symbol on clicking "x" to inform user has successfully removed book from shelf. Visual feedback to represent the physical manipulation of tabs by dragging and dropping across the interface.

To be improved: Lack of substantial feedback. Design lacks substantial feedback for uncommon/erroneous tasks that could be performed by user such as opening too many tabs/side views.

Suggestion: Implementing more substantial feedback. Warning message could be rendered to inform and prevent users from opening too many side views/tabs as it may become disorienting and defeats the initial use and functionalities of opening a side view/tab in the first place.

Suggestion: Pop up dialogs. To complement the modest/substantial feedback mentioned and also to design dialogs to yield closure, short pop up dialog (e.g. "Success! Book Removed!") can be rendered at the corner of the bottom corners of the screen. This also prevents obstruction on the interface so as to not frustrate users.
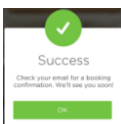


### Additional Comments (General Feedback + Jakob Nielsen's 10 general principles for interaction design)

Leveraging on Artificial Intelligence: to perform searches and indices of keywords, more can be leveraged upon especially in the area of artificial intelligence to create a better user experience as this e-book reader still requires user to type in their searches. Some examples are searching for keywords via drawings or speaking:



Help & Documentation: some of the gestures required to perform the functionalities of the e-book reader may not be intuitive especially to the older users who are not tech-savvy. Render a pop-up which guides users on how to use e-book reader with the specific gestures when opened for the first time. A help button can also be placed on the navigation bar so that users can easily obtain this information and receive assistance.

Aesthetic & Minimalistic Design: User interface is pleasing with a clean and minimalistic structure, only displaying the necessary elements to users, preventing clutter and an untidy application which may irk users.

Match between system and the real world: Language used to describe functionalities are familiar without technical jargons. Structure of shelf displaying books in application mimics the display of books at the book store or library. Information is generally presented in a natural and logical order.