II. Evaluation of website's information architecture

Providing all kinds of recipe is a main feature of Joy of Baking. Recipe contents consist of many facets of recipes such as type, seasonal recipes, holiday and ingredients. Another feature mainly focuses on tools such as glossary and conversions sections as we exploring throughout the site. These tools can support users to do well in baking especially when they are novice at baking.

The structure of this site is hierarchical. Facets of recipes can be regarded as nodes in the hierarchical structure. The top level node of this hierarchical structure is the homepage. Users choose a specific category among options such as cake recipes, cookies recipes or new released from homepage. For example, cookie in horizontal menu and candy recipes in the vertical menu are a type of baked goods as shown in figure 2. These menu options can be regarded as second level nodes as shown in Figure 3.

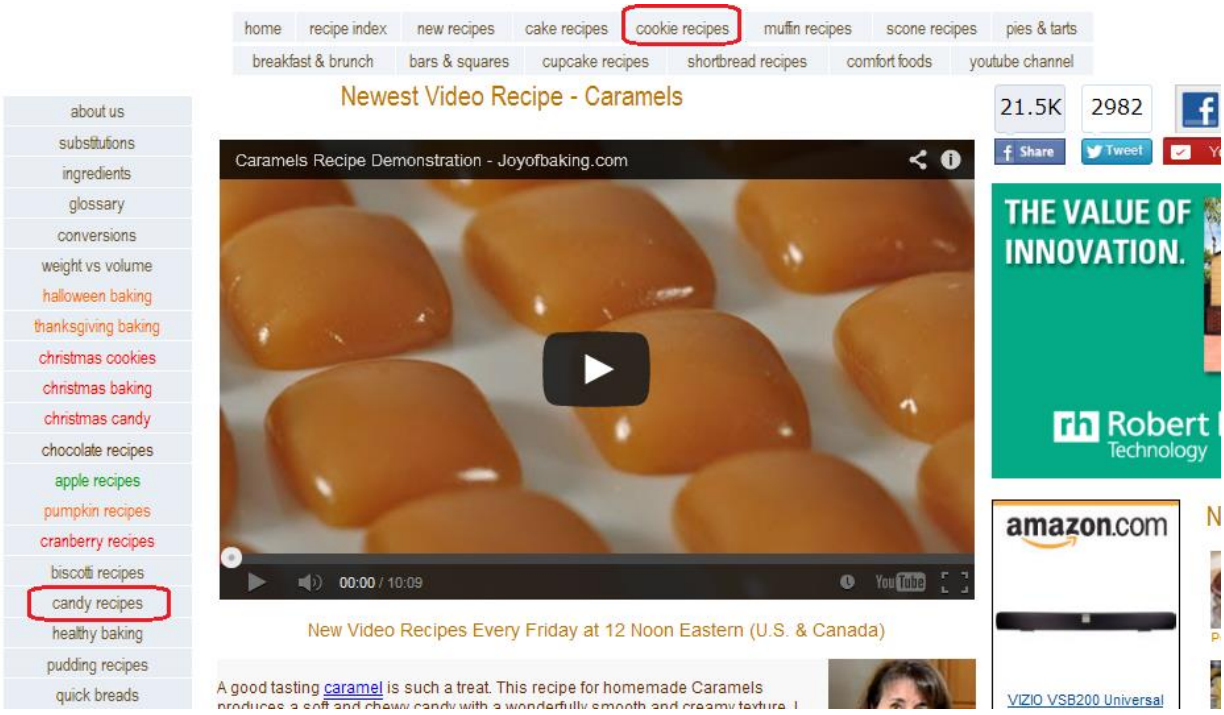

Figure 2. Global navigation bar and vertical navigation both are second level nodes in a hierarchical structure

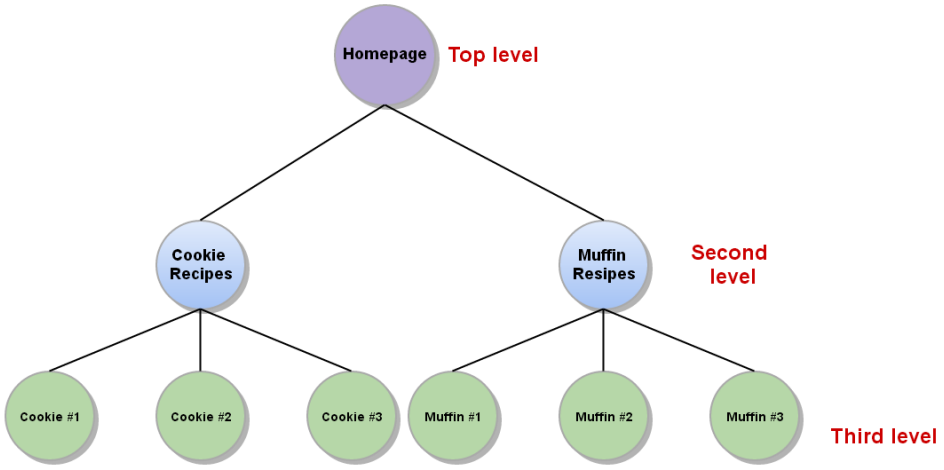

Figure 3. An illustration of hierarchical structure of Joy of Baking.

As shown in figure 3, cookies and muffins are the second level nodes in the structure. Third level nodes are individual recipes under cookie and muffin categories. Nodes in second level provide entries for the third level nodes. This hierarchical structure is shown in figure 4 with screenshots. A cake recipe menu is a second level node which can direct users to the third level in structure. A red velvet cake recipe with detailed description is a third level node.

Figure 4. Users are directed to the third level nodes from a second level node

The current arrangement and classification of horizontal and vertical menu are not proper. These menus both contain recipes that are categorized by the same principles. Categories of baked good can be found in these menus. This menu design does not facilitate users' recognitions of system status. Users need to read two menus carefully in order to know what this system can do.

Current categories in global navigation are created based on how users would normally search for a recipe. A detailed list can be found as in Appendix A. The order of these topics is randomly prioritized without any further consideration such as frequency of use and similarity. Thus, it is not easy for user to perceive the whole picture of provided materials. A solution for this issue is to group recipes according to topics such as type, tools, holiday and occasion, ingredients and special purposes. In other words, considering strategies for searching a recipe from users' perspectives is an effective solution to current arrangement issues.

Another recipe website, taste.com.au, provides several options for their users to browse all recipes. Their home page allows users have a full picture of facets easily as shown in figure 5. Users can ask themselves which option suits for their situations immediately. This design is very task oriented to direct users to browse among recipes.

Figure5. Options for browsing recipes at a competitive website.

In current site of Joy of Baking, recipes fit well within its parent node under each topic. But, the order of those recipes is unclear. No further clues to indicate how these recipes are ordered such as released time or popularity. For instance as shown in Figure 6, recipes that contain chocolate from biscotti to cakes can be found within one page. Users have no ways to rearrange the layout of those recipes. This design lacks flexibility and functionality from usability perspective. Users cannot further differentiate recipes in different types of baked goods such as cake or muffin. This is much more challenging when more than 100 related recipes are presented within one page. They have to check all recipe titles throughout the page before making a decision. This behavior would reduce the efficiency of performing a task. The user may either just type key words in search engine or leave the site when they feel frustrated in checking among 100 titles. As a result, those categories could not help users to perform a task of easily identifying desired recipes.

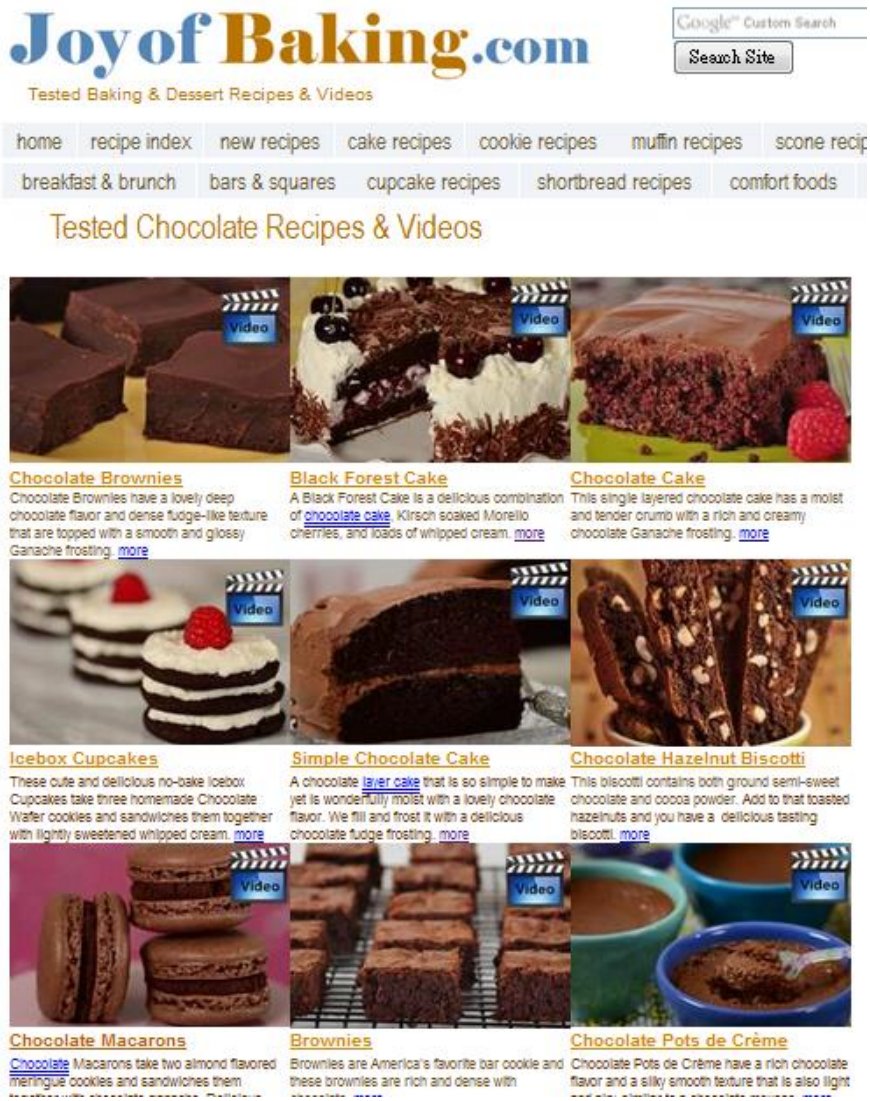

Figure 6. Great number of chocolate recipes without obvious arrangements and user controls would decrease user efficiency.

A competitive website, all recipes, provide their users multiple ways to sort results as shown in figure 7. From the screenshot, we can know 2,984 results were obtained. Reading all titles of result could be very intimidating for users. Thus, they provide users three ways to sort results so that users do not have to read through all titles and get what they want more quickly. Another way to arrange result layout is proving users two options. One is only text list and the other one is results with images. This design gives controls to users. They can arrange results in their preferred ways.

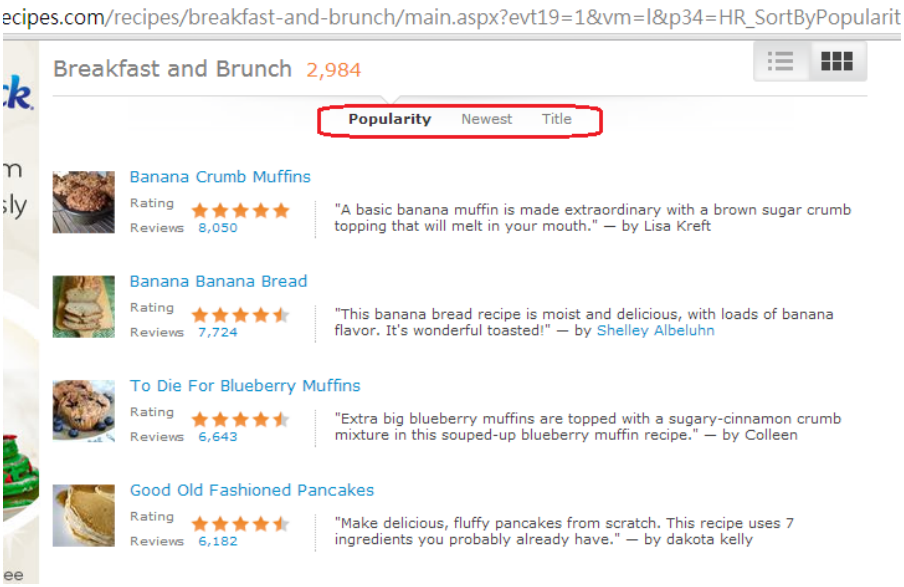

Figure7. An illustration of sorting results from a competitive website.

Another good design for arrange large number of recipes is providing facets for users for searching. A BBC food recipe website shows facets options for searching as shown in figure 8. The total amount of recipes can be more than ten thousands. Yet, with proper designed menu option, the amount of recipe result can be reduced. Users do not need to read all in one single scroll down page. This homepage gives an impression to users that they can search in large number of recipes with ease. This feeling is not obtained when visiting Joy of Baking though we might know they provide a lot of recipes.

Figure8. BBC food recipe provided facets for advanced search

The labeling of the global menu is very intuitive for access to different recipes. Users can anticipate what information they will get after clicking a global menu. However, labeling within pages reveals usability problems. Hypertexts in some pages are not labeled correctly as shown in Figure 9. The labeling seems to provide more information after users click the hypertexts. In fact, the links give user an advertisement in a new window. This is not an appropriate labeling and feedback design that may cause users to feel confused and lost since they did not obtain what they intend to get.

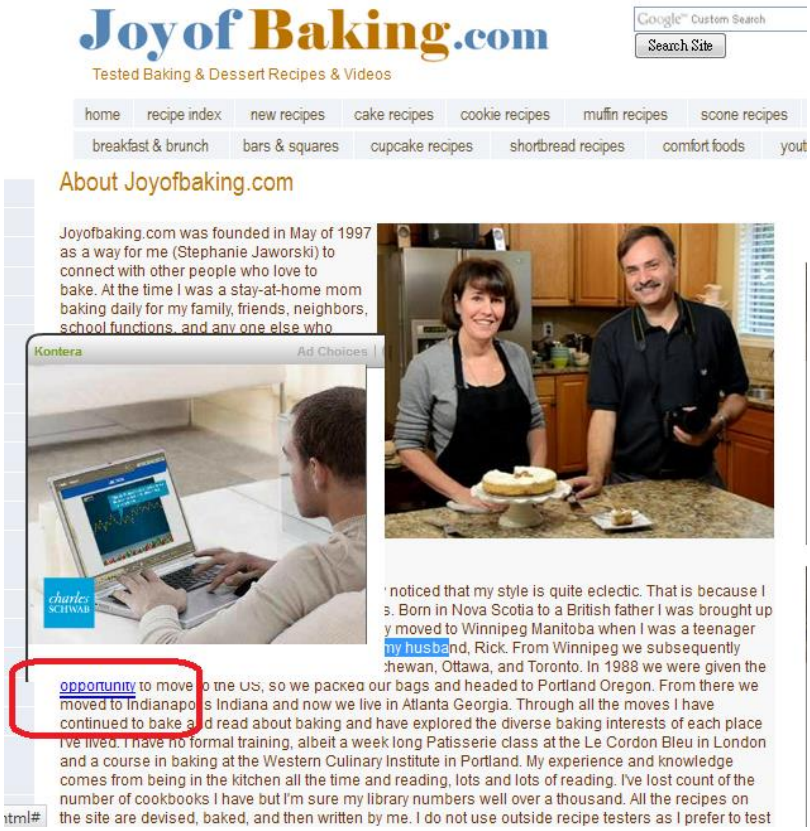

Figure 9. Inappropriate labeling with a new window of an advertisements which may cause users confusions.

The arrangement of homepage menu options needs improvements from a navigational aspect. We usually group similar options together. This strategy makes it easier for users to choose among candidate options. With proper arrangement users can go to the section that meets their task requirements quickly rather than spending time on the homepage to get familiar with the content. Yet, this principle was not taken into account when designing this site. All global menu options are set randomly. Users have to remember locations of similar options. As shown in Figure 10, the cake and ice cream recipes are relatively far from each other. The arbitrary arrangement takes users more time since they need to recall the arrangement.

To overcome this navigational problem, these categories need to be organized in different ways. A solution is to order the categories according to users' tasks. Users usually search a recipe by type, ingredients, occasion and

special needs. These tasks can be set as global navigation bar. With a corresponding task, users can manipulate recipes according to facets that are provided on a vertical menu. Those options in the vertical menu can filter recipes for user. For example, a user starts from cookie recipes. Options in the vertical menu can be ingredients such as berry, chocolate and nuts which are usually shown in search box. The filter solution also improves navigation of this website and solves the problem of presenting large number of recipes. Users don't have to check all recipes one by one when they are browsing a category. Moreover, this solution also helps to revise current organization so that menu options would not be randomly located at different places.

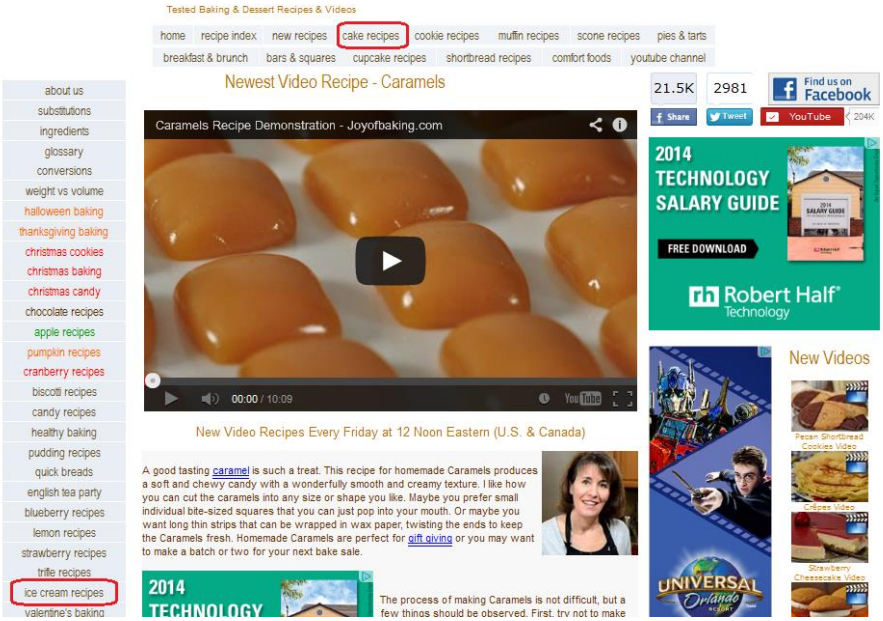

Figure10. Cake and ice cream recipes are located separately in navigation bar.

The global and vertical navigation menu is the only way for users to access the third level nodes. The advantage is that users can quickly access other sections. For example, users can jump from an arbitrary cake recipe to cookie category within one click. This kind of efficiency is worth maintaining. However, other aspects of navigation needs to be improved. In any page, signs could not be found so that users cannot distinguish how they came to a current page and where they are located within the site. This lack of signs can make user get lost

easily. Moreover, once they click on the wrong recipe, users cannot find a way to go back quickly to the previous page unless they click browser built-in buttons. The other way is via global navigation. The shortcoming is that the users have to start the whole process again while they remember the path that they took. This path memorizing solution is much more difficult for users. Moreover, it would be more difficult to memorize multiple browsing paths for users doing longer sessions. Even though this site provides a search engine, it is not practical to access every recipe via search engine and users would have an unpleasant browsing experience. The solution of this problem is providing a hyperlinked record of the path that users took.

In summary, this site needs more improvements according to the following criteria from heuristic evaluation.

1. **Visibility of system status**- available menu options are not clear or well organized
2. **Error prevention** – users have to go back to the home page when they access wrong section
3. **Flexibility and efficiency of use** & **User control and freedom**- users don't have ways to control and manipulate great number of recipes. They can only read through those recipe titles one by one in order to find the one they like.
4. **Recognition rather than recall** – users have to memorize a whole path for reaching a page
5. **Help users recognize, diagnose, and recover from error**- users cannot tell differences between global and vertical menus, improper feedback of hypertexts