

SOUTHWEST UNIVERSITY

CLASS THESIS

Design (Usability) Guidelines & Evaluation

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*A thesis to Evaluate and Improve Tmall Web Design
in the*

Software Engineering
College Of Computer & Information Science Southwest University

December 18, 2020

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Abstract

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Tmall Mall is one of the largest comprehensive shopping malls in China, but the site has many interface design problems. Using the knowledge learned in the UCD course, relevant papers and web resources. The authors propose a guidelines of web design usability for assessing overall as well as individual usability. Guided by the guidelines, the authors evaluated the web design usability of the Tmall webpage in seven dimensions of the webpage and suggested improvements. In addition to these, the authors also redesigned three sections of the web page based on the improvements.

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Chapter 1

Introduction

1.1 Main Content

With the continuous development of the computer industry and the Internet industry, developing a fantastic website is considered as the key to the business success. A professional website designer should pay attention to the guidelines and the theory of web designs usability. This action is quite important for developer not only to think like a user but also to normalize their design which aims to make it easy to use. In addition, applying the Guidelines will help to reduce the negative impacts of opinion-driven design, and referring to evidence-based guidance can reduce the clashes resulting from differences of opinion between design team members [1]. This report includes a website design guidelines composed by the authora usability evaluation, an interface redesigns and a conclusion.

Chapter 2

Website Design(Usability) Guidelines

This section will show the web design guidelines developed by the author through the knowledge of the course. First of all it will determine the website purpose since different purpose have different guidelines. According to the website purpose, the following content mainly includes dimensions that should be evaluated. Based on the guideline dimensions made by Venkatesh, Hoehle and Alijafari[2], the guideline dimensions of are showed in table 2.1. The attribute including the usability of interface and interaction. of guideline dimensions will showed in next a few subsection.

2.1 Website Purpose

A excellent web design should perfectly meet the needs of users. Facing of users with different needs, designers need to make a division of them. Therefore, defining the purpose of a web page is the first step towards making a successful web page. In order to clearing the classification, the following content should be considered.

1. Having a basic positioning of the product
2. Determining the characteristics of different user groups including age, gender, education level, spending power, city, common habits, etc..
3. Determining what different user groups want

When we have correctly categorized the user groups, we can target each group to design features to suit them and enhance their experience.

TABLE 2.1: The guideline dimensions of interface part

Dimension	Description
Access	Operation to get related information
Content	Offer information users needed
Graphs	Use graphics properly
Headings, Titles and Labels	Uses descriptive headings, titles, and labels.
Links	The link needs to be able to be easily and accurately found by the user
List	The user is able to construct a roughly discrete list in his brain through the structure of the web page
Mobile Friendly	The use of the web page on the mobile terminal is in line with the logic of mobile use

2.2 Interface Guidelines

2.2.1 Visibility

An interface should be obvious that what a control in it is used for. It means that user can easily conduct a proper mapping between controls and their effects. A product having great visibility leads to smaller chance to make user confuse about relation between control and its meaning and get fewer complaints.

2.2.2 Affordance

A interface should be obvious that how a control in it is used. It means that design should offer a strong hint to remind users to user the control properly. Likewise, a product with good affordance allows users to have a clearer idea of how a control should be used, leading to higher user satisfaction

2.2.3 Harmony

The user interface provided by the website needs to be uniform and complete, including but not limited to uniform size of elements, uniform style, and uniform design elements used. A harmonious interface design not only makes it easier for developers to develop by unifying standards, but also makes users feel better and more eager to use it.

2.2.4 Balance

Design elements need to be well aligned to keep content organized. It is best to use grid based layout. This structure not only shows the organization of the content well, but also keeps the interface clean

2.2.5 Simplicity

Simplicity is not the antithesis of complexity, nor is it a reduction of functionality, but a good synergy of harmony and balance. For example, it is best to have no more than five colors; too many colors can interfere with the user's use.

2.2.6 Emotion

Emotional design represents a function through visual images. This attribute allows the user to understand the function of the button and the feedback more directly than a mere textual description. Therefore, it is easier for the average user to understand the use of a function by using visual representations rather than technical terms.

2.3 Interaction Guidelines

2.3.1 Learnability

Learnability means that when users are new to a new system and interface, they can quickly get started through system prompts and previous experience. A system that is easy to learn is more attractive to users than a system that is difficult to learn.

2.3.2 Efficiency

Efficiency reveals the state or quality of being efficient. An efficient system that meets the needs of the user faster, including but not limited to response time, success rate in accomplishing goals, and speed in finding information.

2.3.3 Flexibility

Flexibility indicates that the system is flexible enough to respond to different situations. In different situations, users can customize the system interface or the system level operation to make the system able to respond to different situations. For example, it has good support for both PC and mobile terminals. Doing this well will satisfy users with high demand for features.

2.3.4 Satisfaction

Satisfaction generally refers to interaction attributes that satisfy the user. Users are not satisfied with using the system for work, but work efficiently with the system. For example, search engines that require users to log in to their accounts when searching can lead to a dramatic drop in user satisfaction. At the same time, the goal of designing the system should not only be efficiency, but also proper beautification can make users more eager to use the system.

2.3.5 Robustness

Robustness refers to the ability of tolerating perturbations that might affect the systems functional body. Being able to work properly in extreme situations can increase user satisfaction and generate greater user stickiness.

2.3.6 Memorability

Memorability refers to the ability of user to remember the use method of system. For systems that have to be relearned each time, there is no value in actually putting them into use.

Chapter 3

Usability Evaluation

3.1 Evaluation Methodology

Based on the guidelines that proposed in the previous section, each dimension will be evaluated by checking the guideline. The next section will make a brief introduction about the Tmall website, determine the web purpose and make two different typical personas

3.2 Details about Tmall Website Evaluation

Tmall, also known as Taobao Mall and Tmall Mall, is the largest retail shopping website in China, separated from Taobao.com and operated by Zhejiang Tmall Network Co. Tmall Mall consists of directly operated flagship stores and authorized specialty stores of famous brands. Zhejiang Tmall Network Co., Ltd. is now one of the subsidiaries of Alibaba Group. Tmall also supports various services of Taobao, such as Alipay and Jiepo, etc. Next section, author will determine the website purpose.

3.2.1 Web Purpose

Because most of the merchants on Tmall Mall are direct flagship stores and authorized stores of famous brands, the purpose of the website should be to create a comprehensive online mall that also represents the trusted big brands and leading brands. The home page is showed in figure 3.1 and figure 3.2. First of all, the homepage of Tmall is able to load quickly and complete. The page as a whole is divided into 5 sections. The topmost thin bar section is the user bar, which is used to navigate to the user's personal information such as shopping cart, favorites. Under the user bar, the column with the red TMALL logo is the search bar, which is used

TABLE 3.1: Persona 1

Features	Values
Gender	Female
Age	26-35
Educational Level	Bachelor
City of Residence	Tier 1 city
Habit	Fashion
Spending Power(Percentage of Household Expenditure)	17%
Status	The first major user group

TABLE 3.2: Persona 2

Features	Values
Gender	Male
Age	16-25
Educational Level	Bachelor
City of Residence	Tier 1 city
Habit	Technology Products
Spending Power(Percentage of Household Expenditure)	14%
Status	The second major user group

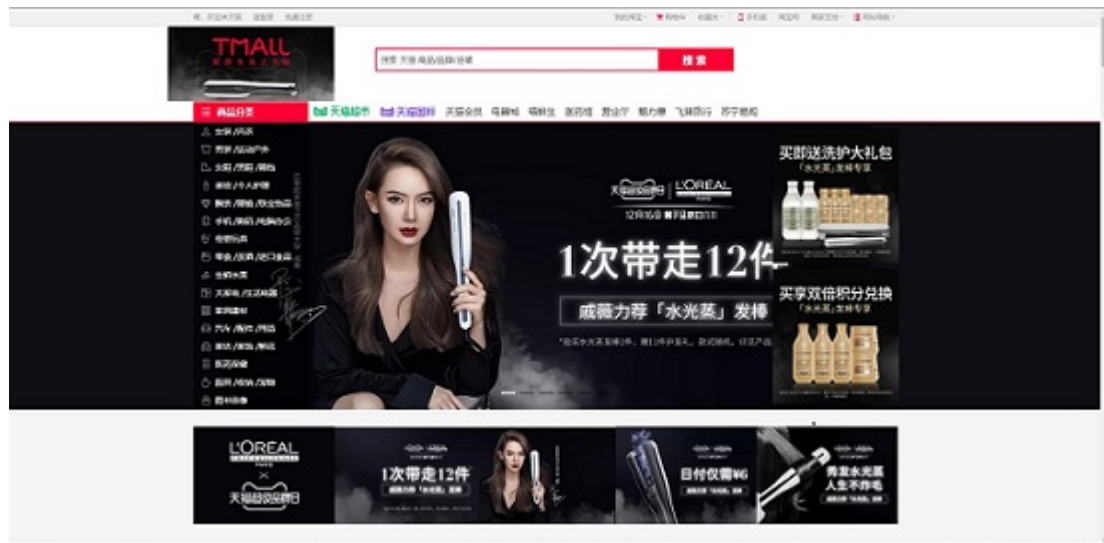


FIGURE 3.1: HomePage part one of Tmall

to search for the products the user wants. Immediately below is a navigation area where users can access the corresponding secondary interface to find satisfactory products by category, while the background of this area will cycle through ads giving information about recent promotions. After that, there is an exclusive area with small squares listing advertisements of some brand-name products, so that users can quickly access the secondary interface of these brands. Finally, there is a rectangle of proportional size that lists the items represented in each category. According to the 2018 e-commerce industry research report[3] provided by Aurora Big Data, the authors used the user portrait data from it to produce two personas as shown in the table 3.1 and the table 3.2. The features of both personas are the features with the largest statistical share.

The first persona is a typical young female e-commerce users. Such users are most in need of beauty and apparel items. The second category of users which are teenagers or youngsters have an average consumption level and like electronic products.

By understanding the purpose of the website and analyzing the two main types of users, we can clarify that the goal of the interface is to make an e-commerce platform that provides a sales channel for products in flagship stores of famous brands, while using quality beauty and apparel as well as digital electronics as the main sales products.

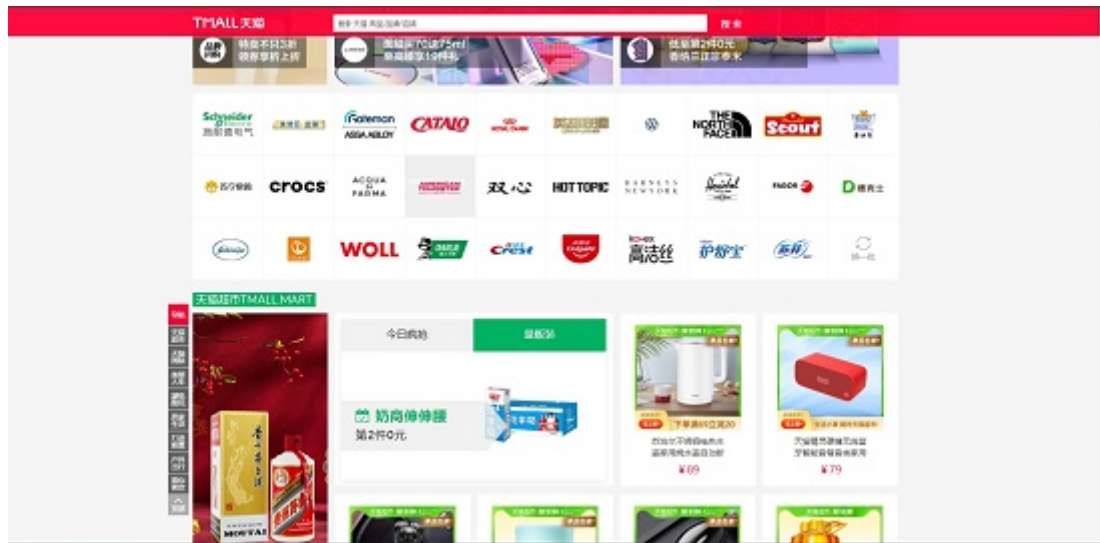


FIGURE 3.2: HomePage part two of Tmall

3.3 Evaluation in two sides

3.3.1 Interface Evaluation

The design of the Tmall web page is generally well-structured and the page looks relatively harmonious. The entire page is dominated by red, and each sub-block is enriched with details through black and white vector graphics or the representative color of the block's function; the shapes of the design elements are uniformly rectangular, while the size of the geometric shapes is used to distinguish between product categories and specific products. In the feedback interface showed in figure 3.3, Tmall does not directly give the text of the search result error, but uses a more witty language and cute and graphic images to tell users that the product they searched for was not found. In addition, Tmall also provides 3 kinds of solutions and feedback portal. The above results reflect that Tmall has an emotional interface. But this page has a problem with simplicity, that is, too many colors in the ads, resulting in large areas of the page that do not fit well with the color tone of the whole page. For example, the ad in figure 3.4 is pink and try to present a fresh interface which is obviously in conflict with the festive home page color tone. In the next subsection, the author will evaluate the interaction and usability of this site.

3.3.2 Interaction and Usability Evaluation

In this subsection, we will analyze the usability of each of the dimensions mentioned in the previous section separately.

1. Access. Thanks to the split-column page design, the overall access of the page is designed more clearly. Users can find the products they are looking for from the search bar and category bar on the page. However, the personal information bar showed in figure 3.5 and figure 3.6 at the top takes up too little space on the page and The user's personal information is not displayed when the page is scrolled down. It may be difficult for users to locate this column when using the page for the first time, which impairs visibility and efficiency. In addition, too small access can lead to weak memorability

2. Content. Thanks to the design of the categories, users



FIGURE 3.3: FeedBack page



FIGURE 3.4: The color of the ad does not match the color tone of the page



FIGURE 3.5: The user's personal information field is too small

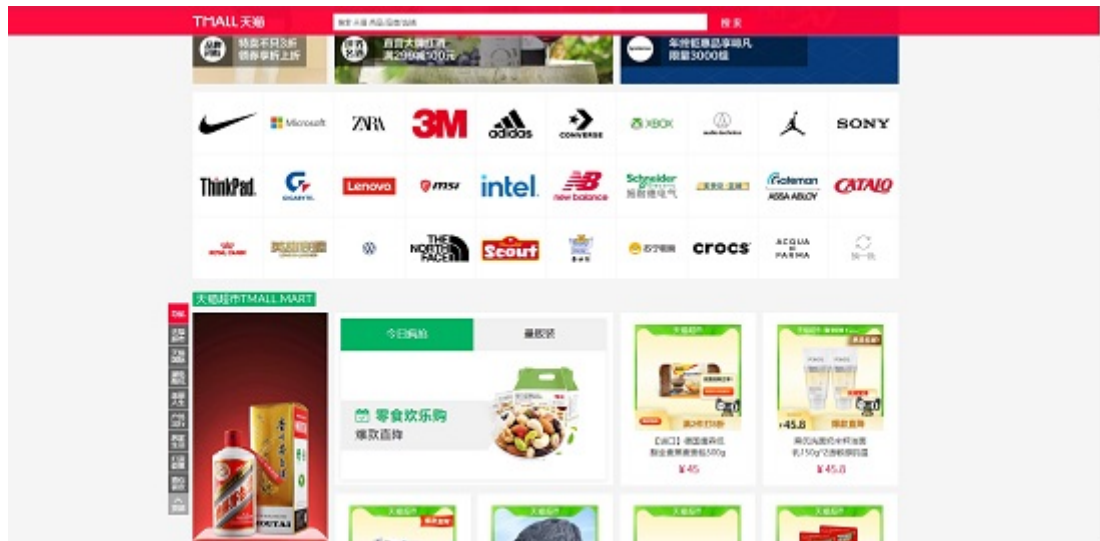


FIGURE 3.6: The user's personal information is not displayed when the page is scrolled down

know exactly how to find the content they want, but the algorithm of recommended goods for each category is not good enough, recommending some goods that users are afraid to be interested in. This compromises the flexibility and efficiency of the page. For the persona 2, figure 3.7 shows that this user interest category recommendation is accurate while in figure 3.8, the recommended apparel and beauty appear exclusively for women, which is inappropriate. What is more, in figure 3.9, this is not necessary because the first time user does not know if the brand is in the category he wants to buy, so the design will damage the visibility and affordance.

3. Graphs. The pictures in the web page can show the information well, which means that there is good visibility and affordance in the pictures. At the same time, the user can quickly determine through the picture what goods the picture is related to, improving flexibility.

4. Headings, Titles and Labels. The page title as a whole satisfies visibility, but there are a few subheadings that are not clearly stated and can easily confuse users. In figure 3.10, there is a second part of the page with category headings, and one of the headings is called "Glamorous Benefit" which is not clear. This is a heading that points to various decorative items, but it is not possible to correctly determine the type of items in it from the heading. The site needs to be improved because this is the part that persona 1 is interested in. As for figure 3.11, although the English headings are clear, the Chinese headings can not reveal the exact meaning of the part they present. Therefore, web design requires improvements to headings.

5. Links. The link names on the website are able to accurately describe the pages to which the links point, perfectly reflecting visibility and affinity. At the same time, because the link is clearly expressed, it also has learnability and efficiency.

6. List. Because of the well-structured layout of the page, users are able to build the interface provided by the page directly in their brains, reflecting good learnability and memorability.

7. Mobile Friendly. For mobile users, the Tmall web page is not so friendly. In figure 3.11, the Tmobile web page on mobile always requests to open the Tmobile app. Although the mobile app is certainly more functional than the web page, the web page is more suitable for lightweight use. Therefore, this kind of forced bundling may

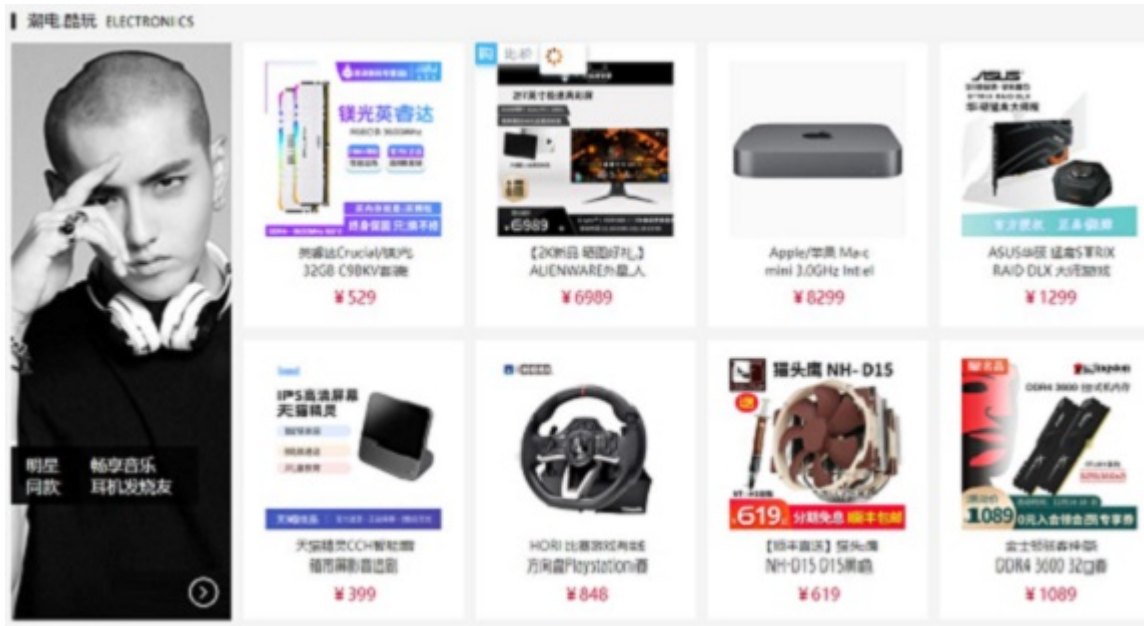


FIGURE 3.7: The exact category of product recommendation

seriously damage the satisfaction and robustness, while the poor experience on the mobile side damages the flexibility. At the same time, the mobile page does not have a good structured design on the computer side, reducing efficiency. In general, the usability of Tmall's web pages is high. However, the design of the search and personal information fields, header content, recommended content and mobile pages need to be improved. In other words, visibility, affordance, flexibility, efficiency and robustness need to be improved.

3.4 Recommendation

1. Tmall website should redesign the personal information bar and search bar, the designer needs to integrate them together. Also enlarge the font in the personal information field.
2. Confusing Chinese titles and product information that is not suitable for the user needs to be removed should be changed.
3. Mobile web design needs to be more structured and not force the Tmall app to open.

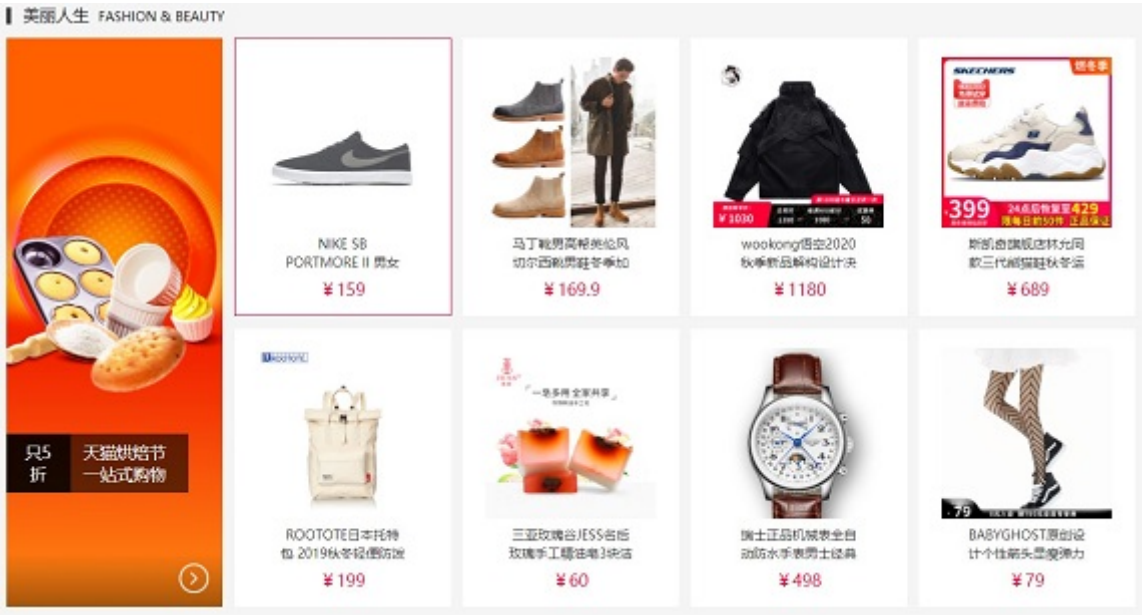


FIGURE 3.8: Categories with inaccurate product recommendations



FIGURE 3.9: Confusing area of brands

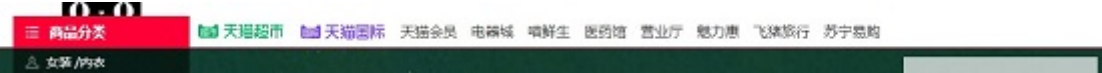


FIGURE 3.10: Categories with inaccurate product recommendations



FIGURE 3.11: Confusing area of brands

Chapter 4

Redesign of the Website

This section will redesign the interface according to the recommendation that proposed in previous section in order to improve the usability.

4.1 Redesign of Personal Information Bar and Search Bar

In the author's redesign which is showed in figure 4.1, the overall design elements of the original interface's right-angled rectangle with the main color of red and white are used. The author used the blank space on both sides of the search bar in the original interface and integrated personal information into it. The text of frequently used personal information was extracted and enlarged to enhance the visibility of the interface. The Tmall logo and the shopping cart image were also used to give this section an emotional design. This redesign will improve the learnability and memorability of the site, thus increasing user satisfaction and user retention.

4.2 Redesign of Headings

The title of the original interface does not clearly express the meaning of Brand Sale, the new redesigned title showed in figure 4.2 can well reflect the visibility and efficiency so that users can better access the information of the page. The recommended images under the Luxury Channel were also replaced to make them more in line with persona2's preferences. With this redesign, users can locate information faster and get to the content they are interested in. Both efficiency and user satisfaction can be improved. Therefore, this redesign is necessary.

4.3 Redesign of the Structure Mobile Webpage

The area showed in figure 4.3 in the original interface that guides the user to download the app is too large, so the area is reduced in size and resident at the bottom of the page, which does not affect user satisfaction and at the same time achieves the purpose of guiding the user to download the app. At the same time, the author has moved the two persona sections of interest to the middle of the page, which can improve user satisfaction and reduce the time users need to spend on finding



FIGURE 4.1: Integration of personal information bar and search bar



FIGURE 4.2: Redesign of titles and recommended product images

these sections, improving efficiency. This redesign makes the page more concise and organized, and improves the robustness of the page. Removing the strong hint to download the app also makes user satisfaction higher and facilitates higher user retention rates.

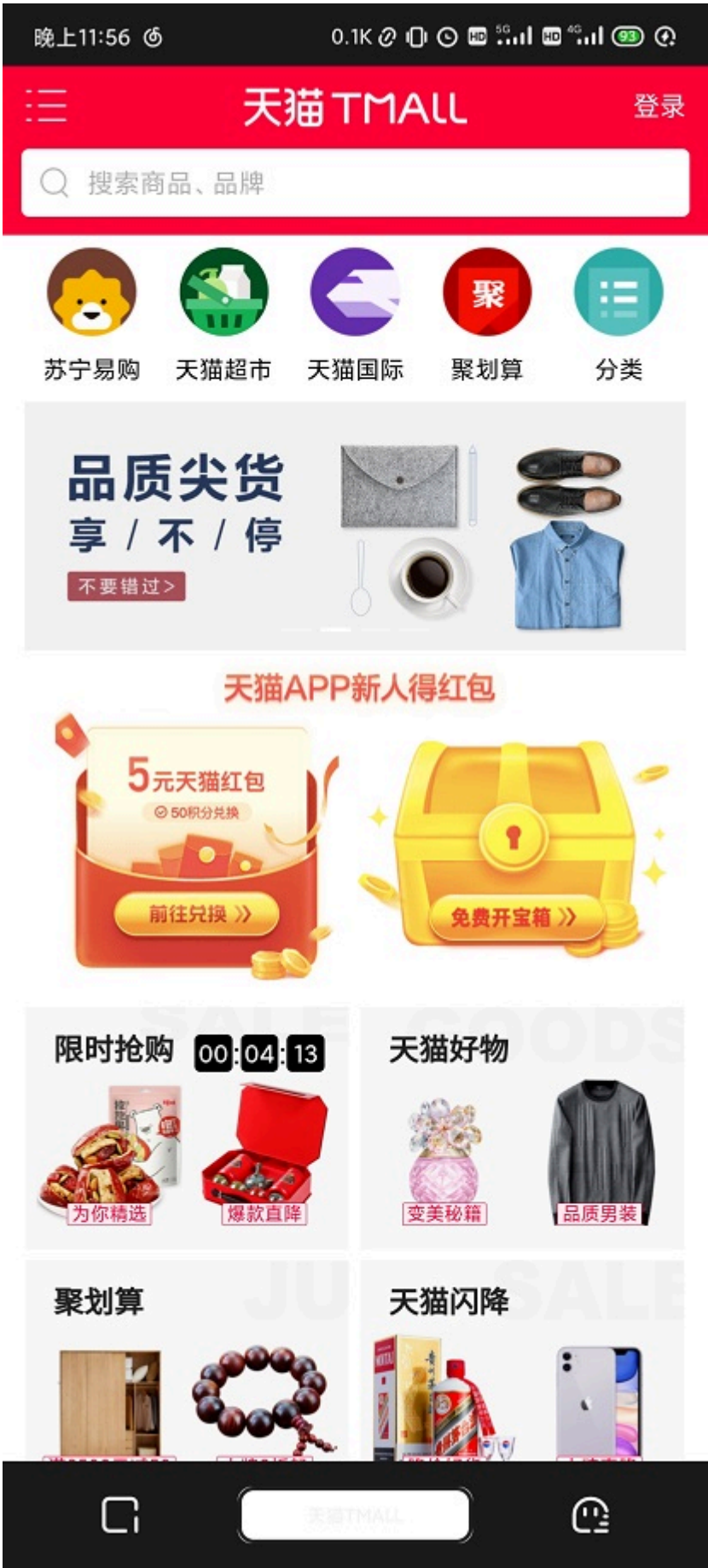


FIGURE 4.3: The original interface



FIGURE 4.4: Redesign of the mobile interface

Chapter 5

Conclusion

5.1 Main Content

In this thesis, the author gives a brief introduction to web design, and then composes his own web design usability guidelines based on what he learned in the course, relevant papers, and web searches. The author then uses his proposed guidelines to evaluate the usability of the website and suggest improvements. Finally, the authors redesigned some interfaces based on the proposed improvements.

Appendix A

Aurora Big Data Figure

A.1 Images referenced in the text



FIGURE A.1: E-commerce platform function and price evaluation

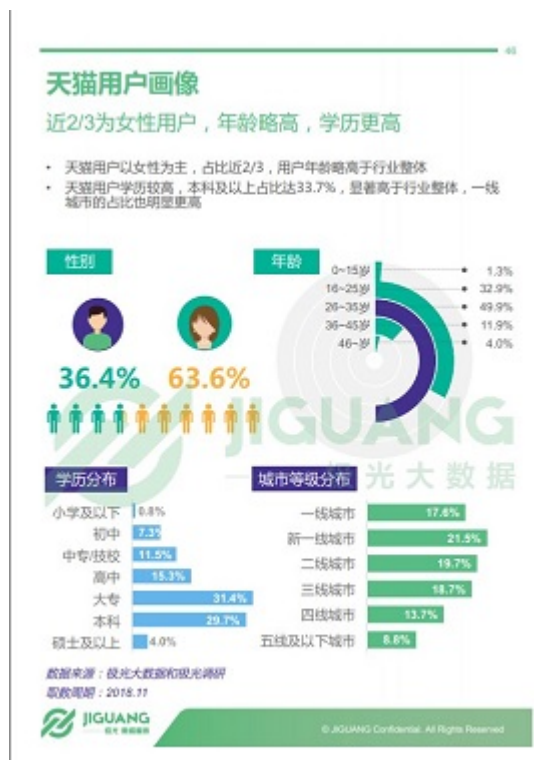


FIGURE A.2: Tmall user portrait

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