Research on DPL Interaction Design Based on Data Products

Zhao Xiaoliang[1, a], Fu Hongyuan [1], Ying Weiqiang[2], Yang Tao[3]

[1]College of Software Technology, Zhejiang University, Hangzhou 310058, China

[2]Zhejiang University City College, Hangzhou 310015, China

[3]Gongniu Group Co., Ltd., Cixi city 315314, China

[a]zhaoxiaoliang@126.com

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Abstract: With the advent of the era of big data, data products have developed rapidly and occupied an important position in Internet products. However, data products have many problems in interactive design development and iteration. At present, the application of DPL (Design Pattern Library) in the project process will solve the above problems to a certain extent, but DPL has not been fully applied in today's data products. In view of the above problems, this paper studies the existing DPL of data products, summarizes and analyses its characteristics and shortcomings, and then puts forward the opportunity points for DPL design optimization of data products. On this basis, DPL interactive design of data products is carried out, and attempts to be achieved in the “business staff” of data products.

1. Introduction

A data product is a form of product that helps users make better decisions and actions by leveraging the value of the data. It acts as an analytical presenter of information and an enabler of value in the process of user decision-making and action [1].

At present, most young Internet companies lack design specifications because of the long time and energy expenditures of specification documents and style template libraries. However, companies often pursue speed and hope that products can seize market opportunities in time. Needless to say DPL [2], for the specification, most of the current methods still use word of mouth, did not form a complete document. Of course, there are also some forward-looking companies and products designed with DPL, such as Ali Mom DPL, Taobao DPL, etc. The more mature DPL abroad is Yahoo. Yahoo's DPL is a universal design component that can be applied to almost any type of website, but it is not targeted and cannot cover the characteristics of each website to meet the corresponding target user needs and product experience [3]. As far as data product design is concerned, most of the existing design specifications at home and abroad are the visual design specifications of basic controls and visual charts, and the detailed dimensions, colors, etc. are marked, but the psychology and behavior of the target users are rarely studied in depth. To form a component specification with a clear usage scenario. Therefore, the DPL that really fits the target user's mental model and usage scenarios is rarely heard.

For the data products and product development of larger Internet companies, the application of DPL in product iteration design is very important. The company adjusts the product according to the needs of the current market conditions, in this case, you can directly call the design components already in the DPL to fill the content, without the need to redesign each small detail, which greatly saves Development time and cycle to achieve maximum resource reuse. In addition, the application of DPL will keep the interface design style of the final product neat and unified, reduce the repetitive design and diversification of interface elements, ensure the consistency of product visual presentation and interactive operation, and unify the user experience. At the same time, for the enterprise, it also ensures the consistency of corporate image communication. All in all, for larger Internet company

products, it is more sensible to apply DPL in product design and iteration.

2. Data Products Existing DPL Research

2.1 Characteristics and limitations of existing DPL for data products

Nowadays, some well-developed products have formed their own design specifications. These design specifications generally have the following characteristics.

1) The specification document is generally the visual specification of the basic control, only the color, the size, etc. are marked, and the specification of the control application scenario is lacking. These specifications clearly indicate the color and size of several types of buttons in different operating states. However, in real user interviews, it was found that even with the button specification, the designer still does not know the usage, position and trigger action of the button type, which is the drawback of the lack of application scene description.

2) The specification document only has the basic control specification. When the basic controls are put together into one module, the position of different controls will be difficult to unify. This situation is getting worse if there are personnel changes in the team's designers. As shown in Figure 1, the presentation styles of the same type of modules on the business staff are obviously inconsistent, mainly reflecting that the indicators and search locations of the screening area are not fixed. 2 The location of the legend area is not uniform. 3 The location of the prompt and description area is not uniform. 4 The horizontal and vertical coordinate density of the graph is not suitable and cannot be guaranteed to be clear and easy to read. Most of the above problems are due to the inconsistency of the components in the module, resulting in inconsistencies in visual presentation and interaction. This is a drawback of the lack of style templates.

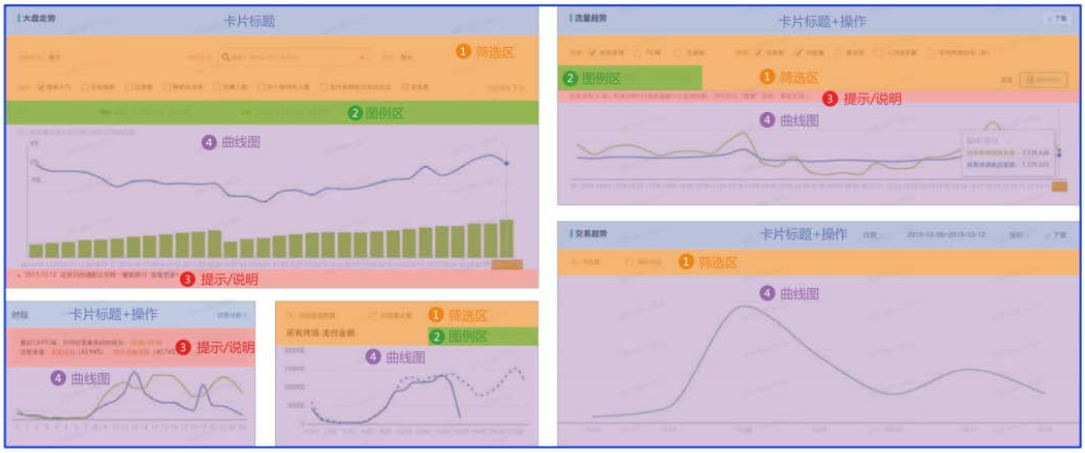

Figure 1 Today's business staff line the same type of module rendering style

2.2 Data Products DPL Optimization Direction

Through the research on the above data product DPL, it is found that DPL has the following problems in design practice: one is how to select the component type in different usage scenarios, and the second is how to place the component position in a certain module. Inconsistent user experience. Therefore, we hope that the DPL of the data product has the specification of the application scenario, so that the designer can clearly understand the usage of the type component, and at the same time, mark the position of the control in the interface, so as to ensure the consistency of the interface interaction mode and the visual presentation.

2.3 data product development team iterative design pain points

Through interviews with different positions of the data product development team, in the process of sorting out the research results, we found the following aspects of user pain points. (1) Designers spend much more time understanding the requirements than they spend on design. Complex data

logic is a huge gap between designers and data products. (2) The professional span between different positions is large, and there is a barrier to communication between designers and programmers. (3) The product development and iteration cycle is long, and the replacement of project personnel brings the difficulty of communication. (4) Different designers design different interactions and visual styles according to their own preferences and habits, resulting in inconsistency in user experience and affecting the conveyance of corporate brand tonality.

In view of the above pain points, we hope that the DPL design of data products can solve the above problems to some extent. Designers can use DPL to reverse understanding design requirements and save time between product managers and designers. Secondly, through component interaction normalization, visual normalization and front-end code normalization, the time cost of designer drawing and front-end engineer programming can be reduced, the project cycle can be shortened, and the consistency of product visual interface and operation mode can be guaranteed. At the same time, when there are people in the team to replace, you can rely on all DPL specifications, quickly integrate into the role, improve the communication efficiency between the various positions.

2.4 Data Products DPL Design Standards

Combine the above interaction design research on e-commerce data products, data product DPL research, data product development team research and target user research of e-commerce data products. We hope that the final design of the DPL meets the following requirements.

(1) With application scenario specification

In addition to the most basic control size and color specifications, it is possible to combine the characteristics of the data product to develop a component's application scenario specification to guide the designer in selecting the controls that are appropriate for the current application scenario. This greatly ensures the consistency of product interaction and visual presentation.

(2) Cardification (also known as modular or plug-in)

In order to make the design framework have higher degrees of freedom and scalability, we have introduced a card design concept. In the webpage constructed by DPL, each card unit can be assembled and removed according to requirements, and the flexibility is extremely high. This can achieve thousands of people, different user roles, and the interface you see is also personalized. While creating personalization, it also ensures the consistency of the overall experience of the product.

(3) Mobile first, backward compatible

We start with mobile design and consider the compatibility and scalability of PC design to achieve maximum interactive multiplexing, control reuse, front-end multiplexing, and improve design and development efficiency.

3. Data products DPL interaction design

3.1 Website Deconstruction

After introducing the concept of cardification, we found that deconstructing a website became very easy and could be layered off. Just like a finished person is made up of organs, organs are made up of tissues, and tissues are made up of cells. A website is composed of multiple web pages. One web page is composed of multiple cards, and one card is composed of A variety of basic controls and specific data content, as shown in Figure 2.

Figure 2 Deconstruction of the website of card thinking

3.2 Card Disassembly and Card Specifications

By looking at the part of the data product business staff line that can be called a card, we found that a card can usually be divided into four parts, Card Title, Card Widget, Card Interpretation (Card Explanation) Content details (Centent). In addition, we first define the interactive architecture and specification of the card in the data product DPL. (1) Card Title: Align left at the top of the card. (2) Card Widget: Align right at the top of the card. (3) Card Explanation: Aligned to the left of the bottom of the card. (4) Centent: Located in the main part of the card.

3.3 Table Disassembly and Table Specifications

After disassembling the form, the most basic elements that make up the form are the Table title, the Table contents, and the pager, which we will name the base form. The content of the form is an indispensable part of any form. The title of the form and the pager are selectively displayed depending on the degree of comprehensibility and magnitude of the content of the form. Any type of form is evolved from the basic form. . For the Tables in the data products, we have the following specifications in the DPL according to the Table type, (1) the basic Table structure (2) the application scenario description, and the basic Table is applied to the simplest Table content presentation. (3) Specification description: a. The contents of the Table, the Chinese characters are left-aligned and the numbers are right-aligned. b. When the amount of data is too large to be displayed on one screen, the title of the Table can be fixed, so that the user can compare the field attributes when scrolling horizontally or vertically. c. The pager is right aligned at the bottom

3.4 DPL application

3.4.1 Reconstruction of the home page of the business staff platform

After the DPL interaction design part was completed, the interaction design of the business staff home page was reconstructed in a shorter time. Directly call components in the DPL component library, such as digital cards, Tables, graphs, etc., and then fill in the specific data information, as shown in Figure 3.

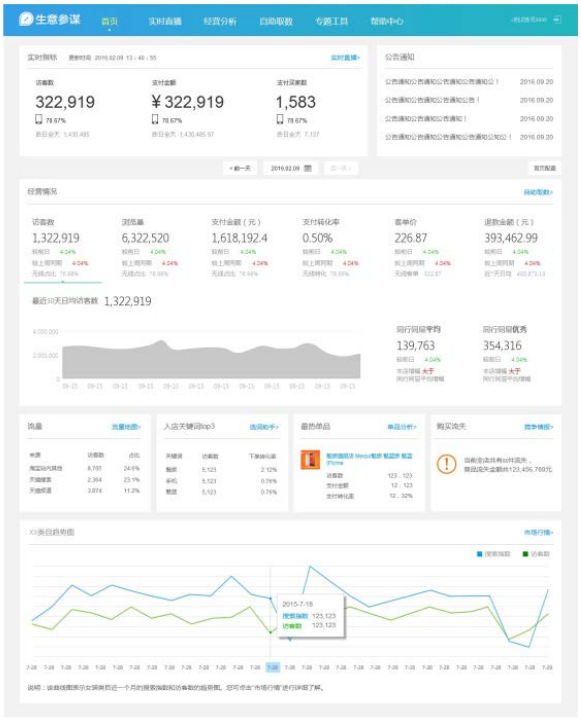

Figure 3 Reconstruction of the home page of the business staff platform

Compared with the current version, the homepage design has the following two advantages: 1) The interactive framework is transformed into a discrete module with functions as a unit, and an

interactive framework presented in the form of a card. Multiple small modules can be pieced together into one large module to achieve a responsive layout. 2) The user can customize the function module that needs to be displayed on the homepage, and at the same time, the position of the function module can be exchanged, thereby realizing thousands of people and customization.

4. Summary

This paper studies the DPL design of data products, combined with the research results of target users of data products and target users of DPL, from the perspective of interaction design, proposes the opportunity of DPL design optimization of data products, on the basis of DPL interaction design of data products. . The DPL has application scenario specifications, implements carding (plug-in), conforms to mobile design features, and can build flexible, multi-faceted and customized data products. The speed of Internet product replacement is fast, DPL design is not a once-and-for-all thing, DPL of data products will also be attached to data products, and should also keep pace with the times. Therefore, in the future, we will continue to look at other data products and keep an eye on the dynamics of data products to supplement and correct the components in the existing DPL style template library.

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