Information Design Used In Metro and Public Service System in China

Mengqian Chen*
Shanghai University of Engineering and Science, 333 Long Teng Road, Sino-Korea multimedia school, A117 SUES, Shanghai 201620, China

*Corresponding author e-mail: 91170008@sues.edu.cn

Abstract. Information design has become more and more popular these days as we have step into a smart phone new era. This document take a survey on some of the main metro station based in shanghai, and analyzed the pros and cons of the information design in existing metro system. Also explained how better information design can be put to use in order to refine user experience when taking metro.

Keywords: Public Service System, Metro System, Information Design

1. Introduction
What is information design? It is a simple question yet hard to answer. In general, information design as it means literally, a well designed system for information to present. It serves the purpose of communication. Walker and Barratt concludes the definition of information design in their paper and pointed out that information design draws on typography, graphic design and applied linguistics, psychology and even ergonomics [1]. Information like text or images are easier to access and understood, however, for huge number of data that lacks order is more difficult for us to make sense, That is where information design take place. Information design ease the process of processing data and makes reading data as easy as reading the image.

China is country with fast developing speed, its fundamental infrastructure is also developing fast. Metros and highways are put to use every year in big and small cities. Needles to say, large number of people are using the metro and public services system everyday. There exists the need of accurately grabbing important information in public place within relatively short period time. In this document, we are going to take a closer look at some of successful information design cases used internationally, and then compare the information design in china’s existing metro system to those successful cases. Lastly, the document will give suggestions for further accomplishing the design system in China metro system.

2. Information Design Case Study
To select successful information design cases used in public service system, we should first understand the notion of information design and where it origins. As Rune Pettersson, Ph.D. writes in his essay:

Information design of today has its origin and its roots in 1) graphic design, 2) education and teaching 3) architecture and engineering, or rather construction and production.
Today information design education ranges from short courses to several years long programs, some even reaching PhD-level. The discipline is also named communication design, document design, and presentation design. In the future, it is quite possible that some universities will introduce very similar design subject matters and use other names. We will have to wait and see [2].

According to Pettersson, information design combines both graphic design and theory in education and teaching as well as architecture and engineering. It can be seen as an object with form of appealing graphic design to catch audience’s intention, while at the same time has to pass the information to the viewers. Lastly it is often combine with architecture, in our case, it has to apply in the metro system, often printed to guide passengers finding the right direction or get on the right line. So what are some of the key criteria to define a good information design? Author Ronnie Lipton writes in his book, selecting some of few key points as following:

1) It helps people navigate and understand the increasingly complex world of facts, figures, directions, and demands.
2) It helps users finish a task, solve a problem, or meet a need.
3) It minimizes or eliminates frustrations.
4) It begins and ends with understanding the people who will use the content and making sure that the content and its presentation and delivery serve them [3].

Combining with these key criteria, we could say a good information design in metro or public services system should include those following points: it helps people to locate where he is in the public metro station and can quickly navigate himself to the direction he choose to go. It should have to frustrations for passengers to take the right line. The visual icons and symbols are easy to read and well designed.

I couldn’t agree more with Robert E. Horn that “what we need is not more information but the ability to present the right information to the right people at the right time, in the most effective and efficient form. [4]”

Based on these three criteria, this document selected some intentionally well known public metro station as example to illustrate how good information design is put to used in these cases.

2.1. Case Study: Information Design in London Metro System

Harry Beck in 1933 is the designer first come up the idea of “schematic diagram”. He is famous for using this schematic diagram and put to use to current London underground system. It has a great impact on metro system and almost all the other cities follows his idea when design the metro public transportation map. So it is vital important to study the London metro system, as it sets a good model for worlds’ other public transportation system.

To begin with, we have to understand what is “schematic diagram”

According to Harry Beck what is more important for Londoners to know how to get around the subway (ie. how to get from one station to another) than to know the geographical accuracy of each station. Therefore, he suggested highlighting the nodes and links of each line introducing a color code, straight lines (horizontals, verticals and 45-degree angles) and a scale distortion in order to place all the stations at equal distances from one another.

This diagram set a foundation stone for all the metro maps in the future.

Like all the big cites, London underground system is very complex, however, Beck using straight line and different color to distinguish different metro line. It is easy to read, geometrically placed, and all the information are presents in an order that viewers can quickly access and grab the information they need. There are no geographical information marked in maps, because it is the information that passengers don’t care about. What they do care about is the destination they plan to go, so only a straight line pointing with clear destination is enough for the viewers. In the information design process, because of large number of data, we as designer has to organize the information in advance for our viewer, and try to build an order and system inside. London metro map is a very good example of how designer digest information and simplifies it to make it clearer for viewer.

One things to to noted is that metro maps is quite different from other types of maps. Paul Mijksenaar wrote in his book: When reality is radically schematized, the link with that same reality is quickly lost. Metro-type system with few stops and long distances in-between is perfect to apply to schematic diagram, while the bus network map can not follow this rule [5].
Another successful part of London metro system is that it adopts unite visual code for every station. The London underground icon with distinguishable red color make it really stand out. And gradually it become a business card for the city. the red London metro icon marked the entrance for the metro station in the city. In addition to that, the whole typeface design is unite and cohesive, corresponding to the metro map. The icon of London metro station becomes a culture symbol over the years, with more and more company choose to print the maps on the their product.

2.2. Case Study: Information Design in New York Metro System

Just like London, we can not omit the name of Harry Beck when speaking London underground system, we certainly have to mention genius Massimo Vignelli when talking the subject of New York metro system.

He is a modernist graphic designer and brought new ideas to New York. What he do is to set out a new The Graphics Standards Manual and the visual identity of the system. They designed the standard first, and then matched the metro information design to their preset standard, which is a very clever way that save a lot of energy and time.

Similar to Beck’s process, Vignelli also using the schematic layout in the New York underground map. The geometric shape and bold color choice let the passenger could distinguish each line without any trouble. Also the typeface chosen in in the maps, as well as in the station are unite. The whole metro system uses the same visual code, same design approach and same typography. Besides the appealing look of the New York subway system, the metro system serve the purpose of effectively helping people to navigate themselves.

As we have talk about some of the key criteria for a good information design, Vignelli’s ground breaking piece is no doubt matches all the key point.

3. Information Design in Shanghai Public Service System

Shanghai is one of the biggest city in china with over 24million population, the number of people using metro system everyday is undeniable large. How to effectively direct crowds, how to refine the metro system in shanghai is a project that needs further thoughts.

3.1. Information Design Used in Shanghai Metro Map

We have discussed examples of good information design used in the metro system worldwide, now let’s look at the design system in shanghai. Here attached is a metro map of shanghai.

Fig 1. Shanghai subway map
It is notable that Shanghai metro map also adapted schematic diagram, making the whole page clean and tidy without showing abundant information. However, when I did the research online, there are many versions of Shanghai metro maps, see Fig 2 and Fig 1. There seems not to be a unite or official standard for each map. In some maps, the white space is large with big margin, while in others, the space is limited. Also the typeface showing in each map is different.

Fig 2. Shanghai subway map

Pettersson have mentioned some of the basic criteria for information design principles in his introduction book, one of which is clarity [6]. Which I found the information displayed in this version of Shanghai metro map (see the Fig 3) is bit confusing.

Another problem with the existing Shanghai metro map is that there are no visual identity to the Shanghai metro map. Despite the random typeface chosen in different version of the maps, there is no cohesive visual code and symbols to the whole metro map. There is a icon that represent the Shanghai metro, however, there are no other graphic visuals to support the design of the icon. As Pettersson pointed out in his book: a persuasive design unity suggests an “overall” togetherness [7]. The cohesive design and unity is something I find missing in Shanghai metro map design.

3.2. Information Design Used in Shanghai Metro Station

Maps are one of the important aspects in metro station information design system. Another part is how the design is applied to stations, how designs are working as a whole to actually serve its purpose which is effectively direct passengers to navigate himself.

As Benoit suggested in his essay: Several streams of investigation weigh many theories of the conversion of data to ‘information’ [8]. The best way is to study something is by practice, therefore, we have conducted several field trips to collect necessary information. Taking Metro system in Shanghai as an example. We select one major conjunction metro station Xu Jia Hui, and one bus, airport, metro station Hongqiao.

Xujiahui metro station is a large conjunction station including line 9, line 11 and line 1. We are visiting this metro station on weekdays but not in the rush hour. Although missing its peak hour, the amount of people using the metro is already astonishing. When first stepping in the station, there are guided signs with different color attached on the ground to direct people. Each line has assigned one color. Line 9 is blue, and line 11, line 1 is red. It might cause confusions among people as both of the line 11 and line 1 are red, only different shade of red. Another problem I find it might cause trouble...
with the passenger is that the advertising on the station is very distracting, might mislead the passengers to the wrong line.

David Gibson has classified different types of signs in his book, one is directional signs and the other is orientation signs [9]. I found in Xujiahui metro station, there are many directional signs indicating route for passengers, however not so many orientation signs, most of the time I just follow the crowd to move forward without knowing exactly where I am.

The situation in Hongqiao metro station is rather more complicated, as the station contains bus station, metro station as well as airport station. The metro station is underground, when we conduct the field trip, I find it difficult for me to find right entrance and find the right bus station. I think for more complicated conjunction station, the function should be enhanced for passengers to locate.

As Spinuzzi wrote in his book: Fieldwork-to formalization methods are “meant to guide system design through the stages of gathering data from customers, modeling and interpret that information, and designing and implementing systems based on that information [10] I would suggest further researches could be made to enhance the passengers experience in the major conjunction station in Shanghai metro subway.

4. Conclusion
In this passage, we have discussed the definition of information design and some of the key standards of good information design. After close study of some of the successful metro station information design, we then move to Shanghai metro system, the general sign and signal design is clear, however, the information design in Chinese public system lacks something more original. There is no unique visual symbol or visual taste in each single city. And some of the design elements are not consistent.

References
[1] Sue Walker and Mark Barratt: About: Information Design, pp.1. (2007)
[2] Rune Pettersson: Information Design Theories. (2014)
[3] Ronnie Lipton: The Practical Guide to Information Design, pp.71. (2007)
[4] Kim Baer: Information design Workbook, pp.18. (2008)
[5] Paul Mijksenaar: An introduction to Information Design, pp.5. (1997)
[6] Rune Pettersson: Information Design, An introduction, pp.50. (2002)
[7] Rune Pettersson: Information Design, An introduction, pp.52. (2002)
[8] Gerald Benoît :The ‘beautiful’ in information: thoughts about visual literacy and aesthetics, Journal of Visual Literacy(2016)
[9] David Gibson: The Way finding Handbook: Information Design for Public Places, pp.11. (2009)
[10] Clay Spinuzzi: Tracing Genre through Organizations”. pp.52. (2002)